

# **Exploitation Tactics: A Doctrine for the 21<sup>st</sup> Century**

**A Monograph  
by  
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## **Abstract**

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Globalization has changed many security, economic, political, and social conditions that shape world behavior; which in turn has produced a new paradigm for warfare that is fundamentally different from the industrial aged warfare paradigm that the world was accustomed to in the 20th century. This paper recommends that current U.S. doctrine be modified to focus on “exploitation tactics” as a better way to support 21<sup>st</sup> Century Combat Operations. The paper uses a case study of the 2-25 Stryker Brigade Combat Team to demonstrate how to restructure a modular brigade size organization to increase its effectiveness on a 21st Century battlefield. This restructuring includes Brigade, Battalion, and Company Fusion/Exploitation Cells, Company and Platoons S2s, and toolkits that provide the technical means to support this exploitation strategy. Central to the restructuring effort is to create the ability for commanders at the platoon and company level to see and understand the battlefield so they can act decisively and maneuver intelligence throughout the depth and breadth of the Joint Force. This restructuring effort takes advantage of the work that has been done to better understand how to solve adaptive problems by agents of change in the Army, DoD, and academic community and lessons learned with Theater Fusion Cells and the F3EA process in Iraq and Afghanistan. This study will also describe the new role of command and control in the 21st Century. The challenge of Army leaders today is to harness the innovative and adaptive capacities of their people to solve complex adaptive problems. The U.S Government must also reframe its Global Security Strategy and institute a Whole of Government approach that allows it to shape the global environment through soft power and “Transparent Maneuver”. While the new edition of Army Field Manual 3.0 acknowledges that the environment has changed, the doctrine for modular brigade combat teams needs to follow suit and adapt to 21st Century warfare by focusing on exploitation tactics that enable subordinate units to see and understand the complex operational environment of the 21<sup>st</sup> Century.

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## Introduction

Globalization changed many security, economic, political, and social conditions that shape the contemporary environment. This in turn has produced a new paradigm for warfare that is fundamentally different from the industrial aged warfare paradigm that the world was accustomed to in the 20th century.<sup>1</sup> The Western World has been slow to respond to the impacts of these revolutionary changes. This has increased the probability for another weapon of mass effect event as witnessed on 9/11. It is also a major reason why the U.S. Army and Marine Corps are decisively engaged in Iraq and Afghanistan today. The U.S. Army has not adapted fast enough in this new security environment in order to win the Nation's wars although it has made significant strides to support the tactical fight by moving from a division to a modular brigade construct. The Army remains organized, trained, and equipped to fight the wars of the 20th Century. The views of globalization have changed from one of optimism and opportunity to that of pessimism and threat. This paper provides recommendations on how the Army can continue to improve the modular brigade construct to better operate in the contemporary environment.

Historically, the Army has prepared to solve bounded, easily defined well-structured military problems where the enemy nation state was clear and the strategic objectives were obvious. This form of warfare to a large degree was technical in nature and could be centrally managed and controlled with a command and control hierarchy that had time to make relatively simplistic strategic and operational assessments which then informed those at the tactical level who had a need to know and act. "The situation in which the Army finds itself is oddly

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<sup>1</sup> A new paradigm for warfare in the 21<sup>st</sup> has become a consistent term in academic and military channels. The recent symposium at Johns Hopkins University calls it "Unrestricted Warfare", GEN David Richards calls it "warfare among the people" in his book *The Utility of Force*, and COL Qiao Liang and COL Wang Xiangsui call it Unrestricted Warfare in their book with the same title. In each reference, this new paradigm addresses the end of industrial age war that is characterized by large military forces that will engage in a strategic decisive battle to achieve a particular political endstate like WWI and WWII. In this new paradigm, 21<sup>st</sup> Century warfare is characterized by the use of force against a less well-defined adversary driven by an uncompromising ideology in order to achieve a less defined political solution. This adversary will not be susceptible to the use of force as exercised during the industrial age paradigm

paradoxical. Future leaders should be adept at operating in unstructured, ambiguous environments, yet the Army is relying on a centralized, over-structured system to provide that capability”.<sup>2</sup> The Army and Joint Forces, to a large degree, have both been slow to truly transform to decisively compete in 21<sup>st</sup> Century warfare.

The post Cold War World required the Army to be reduced to force levels that today have placed the Nation at strategic risk. This is clearly evident as the Army senior leadership painstakingly manages the troop surges and year-to-year rotation of forces to Southwest Asia. The aforementioned facts have eliminated military potential to decisively reinforce operations in Iraq or Afghanistan and in other parts of the world where conflict is possible. To that end, the U.S. lacks a much-needed operational reserve that should be at least two U.S. Corps equivalents.<sup>3</sup> As a result of lack of operational depth, the U.S. Army is ill prepared to operate in the current and future environment.

The lack of operational depth requires the U.S. to create innovative alternatives to maximize its existing combat power resident in each of the new modular brigades. Reorganizing the brigade combat teams will not completely replace or make up for the shortages of forces in the Army today, but some of the initiatives outlined in this paper will greatly enhance the U.S. Army’s ability to wage warfare in the 21<sup>st</sup> Century. The reorganization outlined in this paper provides a blueprint on how to maximize the potential of the innovative modular brigades.

This study will look at how an Army modular brigade size organization can be internally restructured to increase its effectiveness on a 21<sup>st</sup> Century battlefield. Central to the restructuring effort is to create the ability for commanders at the platoon and company level to see and understand the battlefield so they can act decisively and maneuver intelligence throughout the

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<sup>2</sup> Leonard Wong, “Stifled Innovation, Developing Tomorrow’s Leaders Today”, US Army War College Strategic Studies Institute, April 2002, 27

<sup>3</sup> COL Stefan J. Banach, “School of Advanced Military Studies Start Up Brief” (Fort Leavenworth, KS, 7 January 2007) slide 52.

depth and breadth of the Joint Force. How units “maneuver intelligence” will ultimately decide success or failure on the battlefield of the 21<sup>st</sup> Century. The Army’s Actionable Intelligence Game Plan points out that “Timely application of fused, all-source, Actionable Intelligence is the non-negotiable prerequisite for successful operations in complex environments against adaptive, irregular enemies”.<sup>4</sup> While the U.S. Army Capstone Doctrine Manual (FM 3.0) acknowledges that the environment has changed, the doctrine for modular brigade combat teams fails to adapt to 21st Century warfare.

The world has changed significantly in the last twenty years based on globalization and the rise of the non-state actor. This paper will explore the evolutionary change in the problem sets and what the future implications are for the Army. The current security environment is replete with “ill-structured problems” that are far more different than the relatively “well structured problems” the U.S. Army was asked to solve for most of the 20<sup>th</sup> Century.<sup>5</sup>

This new security environment requires the Army to alter the way that it applies force across the spectrum of conflict in the 21<sup>st</sup> Century operational environment. In this environment, the power and performance of smaller units has significantly improved as a result of more combat experienced agile and adaptive leaders who possess critical thinking skills which are ideally suited to employ effective networked organizations. Conversely, larger traditional hierarchal forces have difficulty competing in this new environment because they are unable to adapt quickly enough.<sup>6</sup> Organizations that are best able to take advantage of a cellular networked type construct will gain a considerable advantage over any adversary. This paper will study how cellular organizations are successful in coordinating and connecting distributed nodes in an

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<sup>4</sup> Enclosure 9, Actionable Intelligence, to the 2006 Army Campaign Plan

<sup>5</sup> U.S. Army Concept for Commander’s Appreciation and Campaign Design (Draft), (TRADOC Pamphlet 525-5, July 2007), 7. This Pamphlet identifies an “ill-structured problem” as one where professionals will have difficulty agreeing on problem structure. This term is used synonymously with the term “complex adaptive problem”.



almost unparalleled fashion in Iraq and Afghanistan which is enabling intelligence to be maneuvered to the right place at the precise time to support combat operations.

How the Army learns, leads, structures, mans, equips and trains a 21st Century cellular force and how the Army exercises command and control in the 21st Century warfare is critical to increasing warfighting capabilities as the Army moves forward. The Army has several organizations that are true engines of changes. The School of Advanced Military Studies (SAMS), the Special Operations Community, and the Stryker Brigades are all organizations that exhibit innovation, a willingness to experiment, and take risks to move forward.<sup>7</sup> Specifically, this paper will examine how the 2nd Stryker Brigade of the 25th Infantry Division effectively “self-referenced” and “self-organized” to prepare itself to fight in this environment.<sup>8</sup> The study will address how an adaptive brigade size organization can increase its effectiveness by enabling commanders at the platoon and company level to see and understand the battlefield so they can act decisively in combat. This is achieved by an internal reorganization of brigade assets and the procurement of selected technical systems that are provided to the platoon and companies, not just to battalions and brigades, which was the 20<sup>th</sup> century paradigm.

This study will also describe the new role of command and control in the 21<sup>st</sup> Century. The challenge of Army leaders today is to harness the innovative and adaptive capacities of their

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<sup>6</sup> John Arquilla and David Ronfeldt, *Swarming and the Future of Conflict*, (National Defense Research Institute, CA, 2000), 4-5

<sup>7</sup> COL Stefan J. Banach, Interview with Author on 17 JAN 2007. The author acknowledges that there are other agents of change in the U.S. Army. The organizations referenced in this paper were the ones specifically researched during the course of this study.

<sup>8</sup> Margaret Wheatley, *Leadership and the Science, Discovering Order in a Chaotic World* (2nd ed. San Francisco: Berrett-Koehler Publishers, 1999), 88-94. Dr. Wheatley describes a Self-organizing system as one that is able to become more efficient in the use of its resources and better able to exist in its environment. Self-referencing is a key component of self-organizing systems and describes how a system changes in a way that remains constant with itself in a given environment. Also, Steven Johnson, *Emergence: The Connected Lives of Ants, Brains, Cities, and Software*, (New York, Scribner, 2001), 18. Dr. Johnson describes a “Self Organizing Systems” as ones that are bottom up vice top down. They solve problems by drawing on the collective intelligence of the masses vice a singular intelligent “executive branch”.

people to solve complex adaptive problems.<sup>9</sup> To that end, the function of command and control must be increasingly less hierarchical. Horizontal connections and relationships across the security environment form the key linkages required to enable adaptive exploitative actions by combat forces. The challenge in the 21<sup>st</sup> Century is to better understand how to enable operations through mission command and indirect control of forces that are exploiting battlefield effects in real time. Finally, this paper will highlight the implications for changing U.S. Army doctrine, organization, and training based on the effects of globalization, lessons learned from Iraq and Afghanistan, and the results of the SBCT experiment.

## **Chapter 1: Historical Context and Implications for Change**

The current U.S. Army was trained, organized, and equipped to meet the challenge of the 20<sup>th</sup> Century. The Cold War Period provided the U.S. Army a well-defined threat that could be arranged into linear manageable formations that could be analyzed and understood in relatively simplistic terms. The threat posed by the Soviet Union during the Cold War drove the design, equipping, and training of U.S. forces across all services. As stated by BG (R) Huba Wass de Czege, “this threat forced the U.S. Army to develop a doctrine focused on containing the overarching threat posed by the Soviet Union and its allies”.<sup>10</sup> This led to the development of the Airland Battle Doctrine and associated force structure that was ultimately displayed with the decisive defeat of the large Iraqi Army in the 1991 Gulf War. As Martin Van Creveld highlights in *The Art of War*, when the Gulf War broke out in 1991, it was not significantly different than the type of war seen at the end of the Second World War. The U.S. employed large land formations, large air fleets, large naval forces, and a maneuver warfare plan that would not have

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<sup>9</sup> Ron A. Heifetz, *Leadership Without Easy Answers*, (Cambridge, Mass.: Belknap Press of Harvard University Press, 2000), 2-4

<sup>10</sup> BG (R) Huba Wass de Czege, “Lessons from the Past: Making the Army’s Doctrine Right Enough: Today”, (An Institute of Warfare Publication, September 2006), 3.

been unfamiliar to the German Army of 1941.<sup>11</sup> While weapons systems had clearly improved based on technological advances, the way in which the war was executed was not fundamentally different from what one would recognize as industrial aged warfare.

## **Warfare in the 21<sup>st</sup> Century enabled by globalization**

The period of the Cold War, while dominated by the Soviet threat and great power politics, was not devoid of other conflicts where the U.S. failed to learn important lessons that could have been more applicable to operations in the 21<sup>st</sup> Century. U.S. operations in Vietnam, Iran, and Lebanon provided a glimpse into how the U.S. Military was ill prepared to deal with the threat posed by a non-state enemy driven by ideology and operating outside of the traditional nation system. After the collapse of the Soviet Union, the failed missions in Somalia, sophisticated terrorists attacks against Khobar Towers, the USS Cole, U.S. Embassy's in East Africa, and the World Trade Center all highlighted what the future threat was likely to entail. It is a threat where transnational terrorist and other non-state actors are able to project power in the global environment.<sup>12</sup> These individuals and organizations have and will continue to employ small, well-organized cellular based organizations that leverage western technology. Technological innovations will allow rivals to broaden their reach from conventional operating areas.<sup>13</sup> As stated in *The Unrestrictive Warfare Symposium Proceedings*, "Their ability to adapt, change strategy, and persist serves to empower and shape generations of disenfranchised or

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<sup>11</sup> Martin Van Creveld, *The Art of War: War and Military Thought*, (New York, Harper Collins, 2005), 190-193

<sup>12</sup> LTC William J. Hartman, "Globalization and Asymmetrical Warfare", (Maxwell Air Force Base, 2002), 5.

<sup>13</sup> Examples of terrorist organizations broadening their reach includes the attacks of 9/11, Hezbollah operations in South America, and the recent planned 2006 terrorist attacks in London that were linked to activities in the FATA of Pakistan.

radicalized activists, both here and abroad”.<sup>14</sup> The common factor shared by all of these attacks is that the military force built to fight the Soviets was unable to detect, prevent, or effectively respond to these new types of threats. This represents the first manifestation of 21<sup>st</sup> Century transparent warfare and micro-maneuver on the global stage.<sup>15</sup>

Globalization has been hailed at times as a movement that will lead to universal inclusiveness and global peace.<sup>16</sup> Globalization has also conversely been characterized as a movement where the nation state is losing its influence and the world is returning to tribalism, regionalism, and ethnocentric warfare.<sup>17</sup> The reality of globalization is that both characteristics are true, both are pervasive, and both have significant implications on future operations.

*The Global Trends 2020 Project* characterizes globalization “as an overarching mega-trend, a force so ubiquitous that it will substantially shape all the other trends in the world of 2020”.<sup>18</sup> The study further highlights that the world has not been in this state of flux since the formation of the western alliance system in 1949, and that the very magnitude and speed of change that will continue as a result of globalization will be a defining factor that shapes our future environment.<sup>19</sup> If globalization is in reality a ubiquitous factor, is the U.S. Army postured to operate in this security environment?

The attacks of September 11<sup>th</sup> 2001 ultimately revealed how significant the gap was between the military built to defeat the Soviet threat and win the Cold War and the military that

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<sup>14</sup> “The Unrestricted Warfare Threat, Integrating Strategy, Analysis, and Technology”. (Johns Hopkins University Applied Physics Laboratory, 2007), 6

<sup>15</sup> COL Stefan J. Banach, Interview with Author on 15 March 2008.

<sup>16</sup> Thomas P.M Barnett, *Blueprint for Action: A Future Worth Creating*, (New York, G.P. Putnum’s Sons, 2005), xii

<sup>17</sup> Benjamin R Barber, *Jihad Vs McWorld*, (New York, Times Books, 1995), 3-6.

<sup>18</sup> “Mapping The Global Future: Report of The National Intelligence Councils 2020 Project”, (National Intelligence Council NIC, December 2004), 9

<sup>19</sup> Ibid.

was required to effectively operate in the 21<sup>st</sup> Century globalized world.<sup>20</sup> As stated by Dr. Ron Heifetz, “the terrorism of September 11<sup>th</sup> brought home to the United States an adaptive challenge that has been festering for a very long time”.<sup>21</sup> In the 21<sup>st</sup> Century, the speed of change fueled by the effects of globalization will make war more diffuse and more difficult to prepare for. The U.S. must accept the reality that it lives in an interdependent world where the security of the nation is dependant on our relationships with other nations and cultures.<sup>22</sup>

The goal of the U.S. Army must be to develop a strategy that includes doctrine, organizations, and training programs that allow it to shape the global environment through soft power and a new form of maneuver: “Transparent Maneuver”.<sup>23</sup> Transparent Maneuver is the indirect approach to warfare that employs diplomatic, information, economic, western education, medicine, energy resources, professional media, and forward based military and interagency forces to shape the global environment. The current home-based power projection strategy employed by the U.S. government is the wrong posture for 21<sup>st</sup> Century Warfare. The U.S. needs to reframe its strategy for a whole of government approach to national defense and should incorporate a strategic stance that integrates special operations forces and conventional units in a persistent presence, persistent surveillance, and a persistent attack posture throughout each region of the world. This is the essence of transparent warfare and micro-maneuver, which stand in stark contrast to the large, slow, and overt combat operations that have been contested by the U.S. in the early 21<sup>st</sup> Century.<sup>24</sup> This indirect global exploitation security strategy will require all elements of national power to be joined together in a common security aim.

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<sup>20</sup> Thomas P.M. Barnett, *The Pentagon’s New Road Map: War and Peace in the 21<sup>st</sup> Century*, (New York , Berkley Publishing Group2004), 2.

<sup>21</sup> Ronald A. Hefetz and Martin Linsky, *Leadership on the Line: Staying Alive Through the Dangers of Leading*, (Boston, Harvard Business School Press, 2002), 19.

<sup>22</sup> Ibid.

<sup>23</sup> COL Stefan J. Banach, Interview with Author on 17 JAN 2008.

<sup>24</sup> COL Stefan J. Banach, Interview with Author on 15 March 2008.

## Army Transformation

Given the changed security environment outlined above, is U.S. doctrine and force structure still optimized for warfare in the 21<sup>st</sup> Century? As noted earlier, most of the rules for how to lead and fight have changed in a post 9/11 globalized world. As senior DOD leaders have pointed out, the existing culture is the most prevalent factor that routinely keeps the Army from making meaningful changes to adapt organizations to work in a new paradigm.<sup>25</sup> The Army has not adapted itself well to operate in the 21<sup>st</sup> Century even though a significant body of work exists in academia, business, and military organizations that indicate this would enable the U.S. to better utilize its adaptive capacity in an information dominated environment.

The U.S. Army began an aggressive “transformation program” in 1999 and produced the first Transformation Road Map in 2003.<sup>26</sup> The strategy was intended to transform Army culture, process, and structure in order to operate effectively in the 21<sup>st</sup> Century. The difficulties of transforming while fighting simultaneous combat operations has diverted significant resources and hampered this transformation effort. The Army Transformation campaign plan has failed to produce the forces that are needed to fight in the 21<sup>st</sup> Century.<sup>27</sup>

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<sup>25</sup> “The Unrestricted Warfare Threat, Integrating Strategy, Analysis, and Technology”. (Johns Hopkins University Applied Physics Laboratory, 2007), 22

<sup>26</sup> Addendum H (Army Force Generation) to the US Army 2007 Force Posture Statement, 2007. Transformation is a process that shapes the changing nature of military competition and cooperation through new combinations of concepts, capabilities, people, and organizations. These combinations exploit the Nation's advantages and protect against asymmetric vulnerabilities to sustain strategic position. This helps underpin peace and stability in the world. The Army's Transformation Strategy has three components: the transformation of Army culture, the transformation of processes—risk adjudication using the Current to Future Force construct, and the development of inherently joint transformational capabilities

<sup>27</sup> Frederick Kagan and Michael O’Hanlon, “The Case for Larger Ground Forces”, (The Stanley Foundation, April 2007), 3. Kagan and O’Hanlon highlight that even if the wars in Afghanistan and Iraq were to end tomorrow, and all our soldiers come home, the US Military would still be too small and wrongly organized for the challenges it can expect to face in the years to come.

Army transformation resulted in a modular brigade combat formation that is unparalleled in the history of warfare.<sup>28</sup> The ability of a transformed U.S. Army modular brigade to see, understand, and destroy a conventional military force on the battlefield is simply without question. That is precisely the reason that war in the 21<sup>st</sup> Century involving the employment of a large U.S. ground force against a similarly organized enemy force is unlikely. Conflict in the 21<sup>st</sup> Century will likely occur in parts of the world that have not benefited from the effects of globalization. Iran, North Korea, Pakistan, much of Central Asia and almost all of Africa are economically, educationally, and ideologically disconnected from the “Globalized World”.

In order to mitigate or eliminate these scenarios, the U.S. government must embrace a global shaping strategy that is indirect and employs soft power to influence potential rival actions. The U.S. Military must grow in size and capability to manage the myriad of new security challenges that are emerging everyday on a global scale. The U.S. should be forward based in regions of the world where there is a nexus for terrorist activity. A strategy of home based forces and power projection abroad is a 20<sup>th</sup> Century model that will enable terrorist organizations to develop and grow. Transparent warfare and micro-maneuver across all domains will be the key to minimize the degree of overt energy that the U.S. government injects into the global system. This distributive strategy will also include preemptive military operations by Special Operations Forces (SOF) to shape the future environment in order to prevent another 9/11. The ability to join and create synergy between SOF, conventional forces, and host nation militaries will be critical to success in the 21<sup>st</sup> Century and will produce capabilities that are on display in the Philippines today as the U.S. conducts combat operations there with the Philippine Armed Forces as part of

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<sup>28</sup> This statement is the opinion of the author but is supported by comments from authoritative figures on the subject. A retired U.S. Army General stated on 11 September 2007 during a non-attribution briefing to SAMS that he could not envision any force that was able to challenge that of a U.S. Army Combat Brigade. Thomas Barnett highlights in “BluePrint for Action” that what the US ground forces were able to do toppling both the Afghani and Iraqi Regimes in a matter of weeks with few casualties wasn’t just impressive, but virtually unprecedented. Dr. Christopher M. Schnaubelt, the Deputy Director for National

Operation Enduring Freedom.<sup>29</sup> This must be accomplished within the context of the U.S. national Security Strategy (NSS) that highlights how the U.S. must utilize all elements of national power to deal with threats and challenges before they affect U.S interests.<sup>30</sup>

### **U.S. Army Doctrine**

U.S. Army Field Manual 3.0 establishes the fundamental principles for Army operations. It presents overarching doctrinal guidance and direction for conducting combat operations and sets the foundation for developing tactics, techniques, and procedures found in other Field Manuals.<sup>31</sup> FM 3.0 states that the Army's doctrine constitutes its view of how Army forces dominate the complex land environment and describes how the Army thinks about the conduct of operations. The conduct of operations as described in FM 3.0 are linear in nature, and resemble more of a doctrine that would be required to fight war in the 20<sup>th</sup> instead of the 21<sup>st</sup> Century. As Rupert Smith points out "Doctrine has been used more to justify the basic organization than to explain why adaptations have worked".<sup>32</sup> If events over the last twenty years have shown us anything, it is that the problems the Army will likely face will be new, non-linear, and significantly different than the ones in the past and that in many cases, these situations will defy doctrine. That said, FM 3.0 does an exceptional job of explaining how an Army employs a modular brigade construct while conducting Full Spectrum Operations in the 21<sup>st</sup> Century. The problem is that warfare in the 21<sup>st</sup> Century will mainly involve operations where Army brigades will operate with companies dispersed across non-linear and complex battlefields. Brigades need

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Security Affairs, highlights America's undisputed dominance of conventional maneuver in his article titled "Wither the RMA", published in Parameters, August 1997.

<sup>29</sup> "Operation Enduring Freedom – Philippines", GlobalSecurity.org, <http://www.globalsecurity.org/military/ops/enduring-freedom-philippines.htm> (accessed 31 January 2008)

<sup>30</sup> The National Security Strategy of the United States of America, (The White House, March 2006).

<sup>31</sup> United States Army, Field Manual 3.0, Full Spectrum Operations, (Post Draft), 2005, V



to be employed with a capacity to maximize digitally connected, collaborative, dispersed, informed lethal companies from tactical objectives to strategic information dominance centers to exploit rapidly changing situations on the battlefield.

Warfare in the 21<sup>st</sup> Century is not simply going to be fought by soldiers. Doctrine must address how the Army is going to operate in an environment that is no longer dominated by military force alone. Much of the current criticism surrounding the conduct of operations in Iraq and Afghanistan involves the inability to properly coordinate all the elements of national power and the use of host nation security capabilities. Our Capstone document (FM 3.0) devotes 1 ½ out of 219 pages to discuss coordination with the interagency, civilians, and with contractors on the battlefield.<sup>33</sup> One may argue that this is more of an issue at the Joint level, however, as the premier land force the Army must provide a better focus for how it will operate in this collaborative environment. This is an area where the fighting force is significantly ahead of our doctrine. In the field, units have established Fusion Centers to coordinate targets across the DOD and interagency organizations and they have built Provincial Reconstruction Teams (PRTs) to meet not only military but civic needs of the operational environment. The Army has leveraged contractors to assist in rapidly fielding and maintaining our equipment, and in many cases is looking to academia to help us better understand the combat environment.<sup>34</sup> Given this environment, how units engage outside of purely military channels has to become part of Army strategy, culture, and doctrine. While the role of the PRTs, contractor support, and academic support is outside of the purview of this study, Fusion Centers will be discussed in detail later in this paper.

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<sup>32</sup> Smith, Rupert, *The Utility of Force: The Art of War in the Modern World*, (New York. Knopf, June 2007), xii

<sup>33</sup> United States Army, *Field Manual 3.0, Full Spectrum Operations*, (February 2008).

<sup>34</sup> COL (R) James Greer, “Human Terrain Team (HTT) Briefing”, (Fort Leavenworth, KS, FEB 2007). The briefing highlighted that Sociologists and Anthropologists are part of the HTTs that are being fielded to brigade level in OIF and OEF.

The U.S. forces in the field are changing and continue to meet the challenges of the 21<sup>st</sup> Century in spite of the fact that the Army as an institution has been slow to change and that our current doctrine is not particularly useful for 21<sup>st</sup> century warfare.<sup>35</sup> In many ways, the U.S. Army is “self referencing” and “self organizing” to meet the challenges it faces on the battlefields of the Global War on Terrorism. The organizations fielded on the battlefield today such as Theater Fusion Centers, exploitation teams, company intelligence cells, and platoon intelligence cells are not included in Army Tables of Organization and Equipment (TOEs), Tables of Distribution and Allowances (TDAs), or even as part of future force design updates.<sup>36</sup> These organizations are also not addressed adequately in our doctrine. The Army must embrace the lessons of the current conflicts and the effects of the changing world to build and man organizations that are optimized to fight in the 21<sup>st</sup> Century.

## **Chapter 2: Complex Adaptive Problem Solving and Adaptive Leaders**

In the 21<sup>st</sup> Century, the relationships between the world powers have become more interdependent as globalization spreads and the power of non-state actors increases. Unlike in past military operations, there is no longer a well-defined end state for most military operations, but more likely a desired “Limit of Tolerance” and the need to operate along a “productive range of conflict” for extended period of times that nation states are not accustomed to. These methods address a particular negative trend, like weapons proliferation, Islamic fundamentalism, genocide, or aggression.<sup>37</sup> Operating within a “Limit of Tolerance” and along a productive range of conflict

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<sup>35</sup> BG (R) Huba Wass de Czege, “Lessons from the Past: Making the Army’s Doctrine “Right Enough: Today”, (An Institute of Warfare Publication, September 2006), 16-17. BG (R) explains that FM 3.0 employs what was a useful Cold War generalization to describe current challenges.

<sup>36</sup> TOEs and TDAs are basic authorization documents for the United States Army. These documents outline authorization for personnel and equipment based on Army Doctrine and the unit mission.

<sup>37</sup> Ronald A. Heffetz and Martin Linsky, *Leadership on the Line: Staying Alive Through the Dangers of Leading*, (Boston, Harvard Business School Press, 2002), 108. This concept was used to

in order to solve complex, ill-structured, adaptive problems are new metrics for “winning” in the 21<sup>st</sup> Century.<sup>38</sup> This chapter will discuss the world of “ill-structured problems” and how leaders can effectively operate in this environment.

## 21st Century Problems

The driving force behind the exploration of the world of “ill-structured problems ” originated from the perception that the linear based approach to solving problems rooted in 18<sup>th</sup> Century physics was ill suited to address many of the troubles that the world was beginning to experience in the latter part of the 20<sup>th</sup> Century. This “Newtonian” based approach focuses on “structure, organizational design, on gathering extensive numerical data, and on making decisions using sophisticated mathematical data”.<sup>39</sup> In military terms, a Newtonian approach involves studying enemy divisions, command and control, force ratios, and courses of actions. While these elements were important in the 20<sup>th</sup> Century, they do not describe the types of problems we are confronting in the 21<sup>st</sup> Century. Further, Dr. Margaret Wheatley highlights the nature of the “Quantum World” where nothing exists independent of its relationship with something else.<sup>40</sup> The systemic implications of the vast array of interconnected global relationships cannot be bound or captured in linear math equations. The “Quantum World” has and will continue to produce complex adaptive problems that heretofore have not been adequately addressed through a whole of government approach (WOG) to U.S. national defense.<sup>41</sup> This is a powerful idea that

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support several School of Advanced Military Studies exercises. In this context, Limits of Tolerance are used to describe the point at which our policy makers require action by an instrument of national power (to include military) to quell or settle a threat to our national interests. The range of distress is how we operate within an acceptable limit of tolerance for complex adaptive problems—it is how success is redefined in the 21<sup>st</sup> Century.

<sup>38</sup> Ibid.

<sup>39</sup> Margaret Wheatley, *Leadership and the Science, Discovering Order in a Chaotic World* (2nd ed. San Francisco: Berrett-Koehler Publishers, 1999), 27

<sup>40</sup> Ibid., 34

<sup>41</sup> COL Stefan J. Banach, Interview with Author on 15 March 2008.

has significant implications for how the U.S. military must learn to operate in a world driven by globalization and the continued rise of non-state actors.

Dr. Ron Heifetz, cofounder of the Center for Public Leadership at Harvard, has developed a “Problem Type Classification” tool that is useful in understanding how the Army should think about problem solving in the 21<sup>st</sup> Century.

**THE 21<sup>ST</sup> CENTURY ENVIRONMENT IS  
CHALLENGING OUR THINKING FOR HOW WE ORGANIZE, LEAD  
& LEARN ABOUT COMPLEX & ADAPTIVE PROBLEMS**

**(\*Dr. Ron Heifetz – Problem Type Classification)**

Kind of Work “PROBLEM TYPE CLASSIFICATION”	Problem Definition	Solutions and Implementation	Primary Locus of Responsibility for the Work
<b>*Technical</b> “WELL STRUCTURED PROBLEMS”	<b>Clear</b>	<b>Clear</b>	<b>Authority</b>
<b>*Technical &amp; Adaptive</b> “MEDIUM STRUCTURED PROBLEMS”	<b>Clear</b>	<b>Requires Learning</b>	<b>Authority &amp; Stakeholder</b>
<b>*Adaptive</b> “ILL-STRUCTURED PROBLEMS”	<b>Requires Learning</b>	<b>Requires Learning</b>	<b>Stakeholder &gt;Authority</b>

**Figure 2-1: Problem Type Classification**

As figure 2-1 shows, Dr. Heifetz describes three types of problems: Technical, Technical Adaptive, and Adaptive problems.<sup>42</sup> Technical problems are well structured and clearly defined issues that professional practitioners in authority roles are ideally qualified to solve. Dr. Heifetz is not implying that these problems are simple, only that the problems and solutions are evident to

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<sup>42</sup> Ronald A. Heifetz, *Leadership Without Easy Answers*, (Cambridge, Mass.: Belknap Press of Harvard University Press, 2000), 71

trained professionals. This is the type of problem that traditional authoritative military leaders were trained to solve in the 20<sup>th</sup> Century. He describes a second type of problem: a “Technical and Adaptive problem”. This is a type of problem where the problem definition is clear but there is no clear-cut solution.<sup>43</sup> Technical adaptive problems require the authority figure and the major stakeholders to contribute to problem resolution.

Dr. Heifetz uses heart disease to explain technical adaptive problems given a patient may not be cured by heart surgery alone, a patient may be required to make certain adaptive lifestyle adjustments to fully implement the solution. These are the types of problems where top down traditional military organizations begin to have problems. While authority figures are able to identify the problem, they are unable to solve the adaptive aspects of problem simply by applying traditional authoritative leadership methods. The leader and subordinate stakeholders must dialogue, learn and adapt to apply a correct solution to the technical and adaptive problem set.

Finally, Dr. Heifetz then describes the “Adaptive Problem”. Adaptive Problems require learning to both define the problem and to implement solutions.<sup>44</sup> An analogy of a chronic illness or an impending death best describes this type of problem. Dr. Heifetz explains that with an adaptive problem, authoritative figures must look beyond authoritative solutions and must mobilize adaptive work through stakeholders to arrive at a solution.<sup>45</sup> As learning takes place, “Ill structured and Adaptive Problems” may be shaped into “Technical and Technical Adaptive” components<sup>46</sup>. The goal of this problem solving theory is to iteratively learn about and add structure to adaptive problems so that over time, what was once an ill-structured and adaptive problem becomes well-structured and technical and can be solved by an organization. Dr. Heifetz’s model has implications for how Army leaders empower stakeholders (unit members) to

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<sup>43</sup> Ibid., 74

<sup>44</sup> Ibid., 75

<sup>45</sup> Ibid., 87

learn about and solve adaptive problems over time while operating along a productive range of conflict and within an accepted limit of tolerance. Authoritative leadership will not solve adaptive problems. The answers to adaptive problems come from stakeholders over time through iterative learning and discourse with the authority figure. Leaders in the Army must give the adaptive work to their subordinates if they are truly going to develop correct solutions to the adaptive problems they are trying to solve. Adaptive problem solving takes a lot of time, creates organizational disequilibrium and the focus of the responsibility for the systemic solution rests with the stakeholders.<sup>47</sup>

## **21<sup>st</sup> Century Problem Solving**

In industrial age conflicts, commanders and staffs were able to draw upon similarities from past experiences in order to frame their understanding of the particular problem that needed to be solved.<sup>48</sup> As discussed earlier, Operation DESERT STORM is a good example of how our doctrine, organization, and training was well suited to solve what was essentially a well-structured technical problem. In the 21<sup>st</sup> Century, commanders and staffs will not be able to solve an “Adaptive or ill structured” problem based on their experience and training. Organizations will have to iteratively learn and adapt over time in order to define the problem and to provide the structure required to shape unstructured complex adaptive problems to well-defined and well-structured technical problems.

Doctrine should recognize that in this complex adaptive environment solutions to problems rarely proceed logically from studying the problem. This approach to problem solving

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<sup>46</sup> Ibid., 88

<sup>47</sup> Ibid., Also, the application of Dr. Heifetz’s ideas to military leadership and problem solving was based on collaboration between the author and COL Stefan Banach, the Director of the School of Advanced Military Studies.

<sup>48</sup> U.S. Army Concept for Commander’s Appreciation and Campaign Design (Draft), (TRADOC Pamphlet 525-5, July 2007), 14. Problem Framing involves developing a comprehensive understanding of the situation that a unit will operate in.

is based on the classical, analytical model of decision-making and often contradicts what happens in naturally occurring complex environments.<sup>49</sup> Studies indicate that decision-making is a largely intuitive process where leaders spend the majority of their time gaining an appreciation of the problem to be solved.<sup>50</sup> Once a leader gains a true appreciation of the problem to be solved, he is more likely to decide on a satisfactory way to proceed. Adaptive problems will require more time for leaders to see and understand the solution to the ill-structured issue that they are confronted with and they must consider and use the input from subordinate stakeholders in order to address adaptive problems correctly.

Another method of problem solving is noted by Dr. Klein in his articulation of the Recognition-Primed Decision Model (RPD): commanders' "experience let them identify a reasonable reaction as the first one they considered, so they did not bother thinking of others. They were not being perverse...they were being skillful".<sup>51</sup> These commanders were using pre-existing mental patterns to help solve familiar patterns. This type of response is ideally suited for solving technical and well-structured problems where commanders have the pattern development established to solve the problem at hand. The complexity of the current and future environments requires that the Army change how it educates leaders to correctly identify the type of problem they are confronted with and how to employ the correct method for problem solving. Army leaders require a much greater theoretical understanding of problem type classification and the nuances associated with solving different types of problems. Increased experience and enhanced pattern development is also essential at the lowest level of the Army today. To that end, the Army should consider changing the force structure which has existed with very few changes for many

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<sup>49</sup> Gary A. Klein, Judith Orasanu, Robert Calderwood, and Caroline E. Zsombok, eds., *Decision Making in Action: Models and Methods*, (Norwood NJ: Ablex Publishing, 1993) 17-19

<sup>50</sup> John F. Schmitt, "A Systemic Concept for Operational Design", 13, [http://www.au.af.mil/au/awc/awcgate/usmc/mcw1\\_schmitt\\_op\\_design.pdf](http://www.au.af.mil/au/awc/awcgate/usmc/mcw1_schmitt_op_design.pdf) (accessed 31 January 2008)

<sup>51</sup> Gary Klein, *Sources of Power: How People Make Decisions*. (First MIT Press Paperback edition, Massachusetts, 1999) 17.

years. Given the complexity of the current environment, Majors should be company commanders and Captains should be platoon leaders to deal with both the amount of information and level of complexity of operations at these levels of responsibility. Brigade S2s should be Lieutenant Colonels and Battalion S2s should be Majors given that these are the staff officers that must design the systems that are required to effectively understand and maneuver intelligence to enable operations at the company level.<sup>52</sup> The complexity of current operations requires that these positions be manned with more experienced soldiers who will intuitively know how to act in a broader range of situations given their greater level of experience. Managing the intangibles of intellect and experience within our formation today is one of the keys to success in the 21<sup>st</sup> Century. The rifle company is the echelon of power in today's Army. That said, the Army continues to resource battalions, brigades, divisions, and corps. The Army must reframe this 20<sup>th</sup> Century manning and resource strategy and adapt to the requirements of 21<sup>st</sup> Century warfare by putting increased intellect and experience at the company level in today's Army.<sup>53</sup>

### **Chapter 3: Maneuvering Intelligence in Iraq and Afghanistan**

The old saying "information is power" is no longer true, in the 21<sup>st</sup> Century, "shared information is power".<sup>54</sup> How units organize their people, processes, and systems dictates the level of productivity on the battlefield of the 21<sup>st</sup> Century. The ability to see and understand the environment is not only dependant on the number of Intelligence, Surveillance, and Reconnaissance (ISR) platforms, the number of analysts, and the location of our maneuver forces, but on how units organize in space and time to dominate the environment. Organization drives

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<sup>52</sup> Kenneth Burgess, "Organizing for Irregular Warfare: Implications for the Brigade Combat Team", (Naval Post Graduate School, Monterey, CA, DEC 2007) 118-125. MAJ Burgess recommends that MAJs or senior Captains Command Infantry Companies and that BN S2s are MAJs.

<sup>53</sup> The application of Dr. Klein's ideas on decision making and implications for education and manning in the U.S. Army is based on collaboration between the author and COL Stefan J. Banach, the Director of the School of Advanced Military Studies.

<sup>54</sup> James Crupi, "Neon Buzz Leadership Seminar", (Felts Seminar Room, Fort Leavenworth, KS, DEC 2007), 4



productivity. As stated by Dr. Grisigono, “Adaptive campaigning ...seeks to put in place a philosophy based on adaptation, with the required underpinning concepts, systems and processes to implement that process in an adaptive way, thereby placing the Army on an evolutionary trajectory towards greater success in complex operations”.<sup>55</sup> The Find, Fix, Finish, Exploit, and Analyze (F3EA) process utilized by some Special Operations Command (SOCOM) elements is a direct result of this philosophy of adaptation.

### **The F3EA Process**

The F3EA process was developed and refined by elements of SOCOM while conducting thousands of combat operations in Iraq and Afghanistan.<sup>56</sup> The most significant feature of operations conducted using the F3EA process is the implicit recognition that in a complex environment, operations will focus on how to exploit a target and analyze the information (or learn), in order to produce a greater understanding of the operating environment. The main effort of operations conducted using the F3EA process is to exploit the power of information by rapidly collecting, analyzing, and sharing information at the appropriate level that allows it to be exploited or turned into targetable intelligence.

Operations conducted in Iraq and Afghanistan are never ends unto themselves. They should result in a better understanding of the environment in order to act with greater fidelity in future operations. The exploitation of a target and the analysis of information gained from that exploitation is the main effort of the F3EA process. Chart 3-1 was presented by BG Robert

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<sup>55</sup> Anne-Marie Grisogono, “12<sup>th</sup> ICCRTS, Adapting C2 to the 21<sup>st</sup> Century”, (Defense Science and Technology Organization, Edinburgh, AS) 4.

<sup>56</sup> The author served as the J2 (senior intelligence officer) of a Special Operations Task force conducting combat operations in the CENTCOM AOR utilizing the F3EA process. The F3EA process has also been associated with the F3EAD process and the Personality targeting methodology.

Brown at the Intelligence War Fighting Conference in 2006 and is a version of the F3EA slide that was adapted from SOCOM.<sup>57</sup>

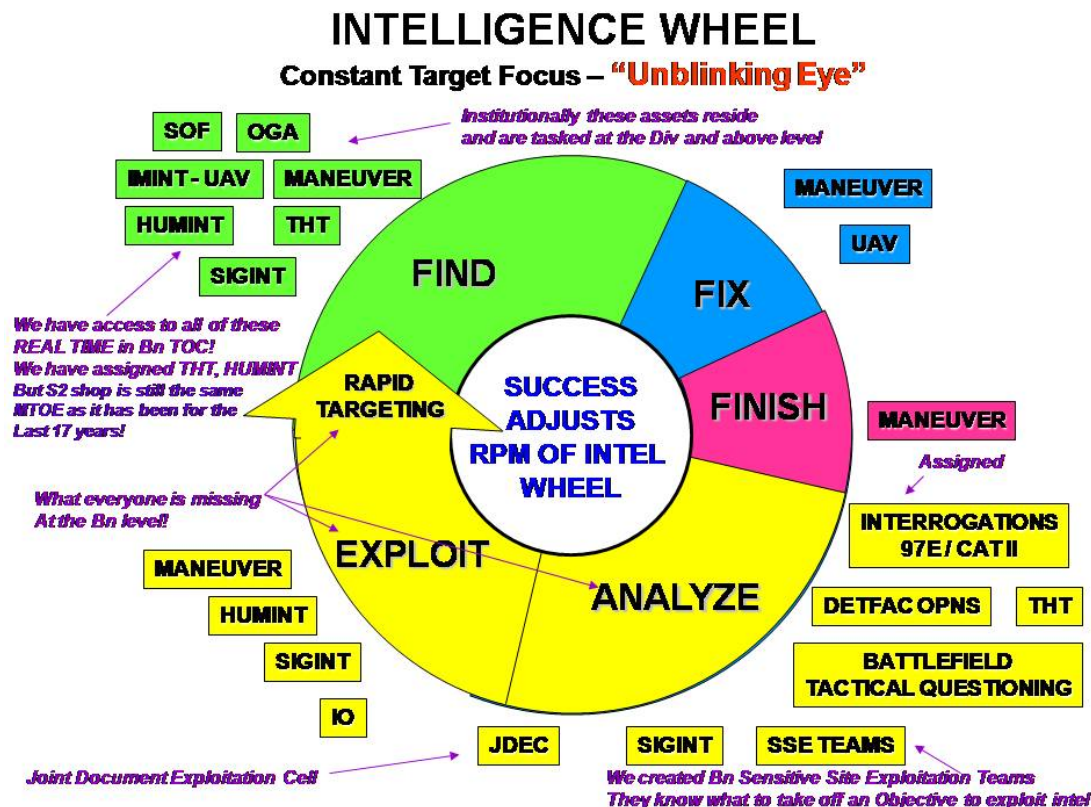


Figure 3-1: F3EA Process and the intelligence wheel

The chart highlights key components of the F3EA process critical to successful operations in the 21<sup>st</sup> Century. The first requirement is to build organizations that focus on exploitation. As stated previously, the fighting forces in the field are well ahead of where the Army is institutionally or doctrinally in terms of “self referencing” and “self organizing” to exploit effectively in the 21<sup>st</sup> Century. As BG Brown pointed out in his *Agile Leaders Mindset Brief*, our modular brigades have great capability at the brigade level but are lacking critical

<sup>57</sup> BG Robert P. Brown, The Agile Leaders Mindset, (Intelligence Warfighting Seminar, DEC 2006) slide 33.

capability at the battalion level.<sup>58</sup> Exploitation capabilities are built at all levels in the special operations community and have created feedback loops that allow U.S. forces to learn and adapt while conducting continuous combat operations. Sensitive site exploitation teams, document exploitation teams, and joint and inter-agency enablers have been introduced across the deployed force to achieve both horizontal and vertical information integration throughout a shared battle space. These enablers leverage the power of the national to tactical systems and integrate the idea of exploitation forward in real time. The second key concept embedded in the F3EA process is the idea of the “Unblinking Eye”.

Units learn by interacting with a system, and then by exploiting the environment based on opportunities created by this interaction. The “unblinking eye”, or “persistent surveillance”, allows units to learn and adapt to opportunities that are presented on the battlefield. Persistent surveillance is not merely placing a long dwell ISR asset over a target, it is “the integration of the human component and various technologies and processes across formerly stove piped domains...in essence, the targeted entity will be unable to move, hide, disperse, deceive, or otherwise break contact with the focused intelligence system”.<sup>59</sup> Persistent surveillance enables the linkage of the maneuver element on the ground vertically from the tactical sensor or point of dominance to the theater and national level assets and agencies that are supporting the effort. It also links the force horizontally to other elements that are operating in battle space which are part of the system the force is affecting. Horizontal and vertical digital integration in time and space is how units make sense of the complex environment of the 21<sup>st</sup> Century. When forces interact within the system, it will produce an effect, in a complex operating environment, that effect will likely be at a time or place that leaders will not be able to predict, the unblinking eye allows units to learn and “maneuver intelligence” to achieve a greater affect. The increased ability to see and

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<sup>58</sup> Ibid.

understand the enemy is irrelevant unless the capacity is built to maneuver that intelligence to the precise point that it is tactically relevant on the battlefield.

## **Theater Fusion Cells**

The F3EA process is designed to prevent the stovepiping of data at the multiple echelons of command. As stated by LTG Kimmons “Tactically relevant analysis, requires full data access at all classification levels”.<sup>60</sup> This requirement for full data access has led to the creation of “Fusion Cells” in Iraq and Afghanistan. Fusion Cells were created to enhance the interoperability between SOF and conventional forces operating in Iraq and Afghanistan.<sup>61</sup> These Fusion Cells consist of members representing the major players or stakeholders in a certain geographic area and generally included conventional, SOF, inter-agency, and coalition (as required) subject matter experts that were brought together without security barriers to increase the overall effectiveness of the targeting effort.<sup>62</sup> The Fusion Cells leverage the ideas behind the F3EA process to arrange data at the point where it is most relevant, and to provide information to the element that is best postured to act decisively. The Fusion Cells achieve horizontal integration by increasing the collaboration of SOF and conventional forces and achieve vertical integration by placing

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<sup>59</sup> MAJ David W. Pental, “The Promise of Persistent Surveillance: What are the Implications for the Common Operating Picture”, Monograph, SAMS Fort Leavenworth ,KS, 2005, 1

<sup>60</sup> LTG John F. Kimmons, “Intelligence Information Technology” (Headquarters Department of the Army, May 2007)

<sup>61</sup> US Joint Forces Command “Application of Tactical Level Fusion Cell Principles at Higher Echelons” (Suffolk VA, 2007) 1. This document was originally marked For Official Use Only. The author requested to use portions of this document for public release and was granted permission from COL Mehle, the commander of JTC-I on DEC 18<sup>th</sup> 2007. Theater Fusion Cells are distinct elements from the Fusion cells that the 2-25 SBCT established at both home station and while deployed. Those Fusion cells will be discussed in chapter 4.

<sup>62</sup> The Fusion Cell Concept was implemented in Iraq in 2005 and Afghanistan in 2006. This reference is based on the personal observations of the author while serving as the J2 of a Joint Special Operations Task Force and includes multiple visits and daily interaction with Fusion Cells in Afghanistan.

elements of the interagency team at a place where they could best leverage their agencies capability in support of an operation.

Joint Forces Command (JFCOM) conducted a study and produced a white paper on the Fusion Cells that are operating in Iraq. These Fusion Cells are a separate entity from the tactical Fusion Cells that are being created in brigade, battalion, and company level command posts. JFCOM identified tactical fusion as a broad concept that includes intelligence, operations, plans, combat support agencies, other government agencies, and coalition partners (if appropriate).<sup>63</sup> The white paper further identified one “foundational ethos” and four “fundamental principles” that are unique to Fusion Cell success. The foundational ethos was referred to as intensity, and was characterized by the urgency and commitment to accomplish the mission. The four principles are listed below:

1. The Fusion Cells are focused and have a singular mission where participants are invested in mission success without being task saturated with non-related issues.
2. The Fusion Cells bridge the traditional gaps and accomplish assigned missions.
3. The Fusion Cells are empowered as the primary problem solvers in their mission areas by contributing units and have tacit authority to act.
4. The Fusion Cells are multi-disciplined and manned with experienced, skilled, operational and intelligence specialist to include Joint, Interagency, and Coalition partners as required.<sup>64</sup>

Theater Fusion Cells assist in breaking some of the industrial age paradigms of hierarchical C2 structures that provide top down guidance to subordinate elements for action. The white paper states that numerous documents have addressed agility concepts in the information age, “but the Fusion Cells have proven the practical application of those concepts in a real world, hostile, and asymmetric environment”.<sup>65</sup> Fusion Cells do not work for a specific unit, they support all battlespace elements by providing timely and relevant fused intelligence to support a

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<sup>63</sup> U.S. Joint Forces Command White Paper “Application of Tactical Level Fusion Cell Principles at Higher Echelons” (Suffolk VA, 2007) 1.

<sup>64</sup> Ibid., The foundational ethos and principles were adapted from the white paper with minor modifications and are consistent with the authors experience with Fusion Cells in Afghanistan.

<sup>65</sup> Ibid., 9

dynamic targeting environment at a time and place where it is relevant. The F3EA process and the Fusion Cells take advantage of the dissipative capacity of Joint organizations to organize in time and space to maximize our ability to exploit opportunities on the battlefield. These organizations reflect battlefield innovations that are assisting the Army as it moves toward the creation of an exploitation doctrine to support 21<sup>st</sup> Century warfare. Fusion Cells are an example of a change that should be implemented across the Army. Although not unit specific, the types, grades, and numbers of individuals to support Army participation in Theater Fusion Cells with associated equipment should be addressed in the Future Force Structure.



Figure 3-2: Exploitation Tactics

As chart 3-2 depicts, “Exploitation Tactics” provide a new way for organizations to think about how to gain and maintain contact with the enemy in the 21<sup>st</sup> Century.<sup>66</sup> Persistent global presence provides an increased ability to leverage intelligence collectors while avoiding decisive engagement. Persistent surveillance provides units the capability to see and understand the enemy. Persistent surveillance takes advantage of the capability of an “open” vice “closed” system to create an environment where information becomes knowable.<sup>67</sup> Persistent presence and persistent surveillance create an environment where commanders can act decisively at the operational and tactical level. At the operational level, the commander is able to employ both “transparent maneuver” across all domains based on the ability to see and understand the environment. The operational commander is able to empower the tactical commander by “maneuvering the intelligence” required to support lethal and non-lethal operations at the exact point and time necessary to achieve decisive effects. The “Persistent Surveillance” concept can be implemented at home station prior to a unit deployment by establishing a digital cellular warfare construct through digitally collaborating across the Global Information Grid (GRG). The 2-25<sup>th</sup> SBCT provides a great example of how a unit has been organized, equipped, and trained to accomplish this in the 21<sup>st</sup> Century and incorporated these practices in the form of “Tactical Overwatch” for an SBCT that was deployed in Iraq. Tactical Overwatch, is a future mission essential task, that provides the ability for a CONUS based brigade to see, learn, understand, and

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<sup>66</sup> COL Stefan J. Banach, Director, School of Advanced Military Studies, interviewed by author on 17 January 2008. Also, see “School of Advanced Military Studies Start Up Brief” (Fort Leavenworth, KS, 7 January 2007) slide 35.

<sup>67</sup> Richard A. Viola, *Organizations in a Changing Society*, (Philadelphia P.A., W.B. Saunders Co, 1977), 1. Viola refers to an “Open System” as an organization that interacts with its environment. This is in contrast to a “closed system” where an organization is closed off from or isolated from the environment. See also Barbara Washburn, “Design of Management Review”, (Washington D.C., Development Publications, January 1976). Dr. Washburn explains an open systems approach as one of an organization that is dynamically engaged in constant interchange between all of its segments as well as appropriate external groups.

provide planning assistance and advice to units that are in actual combat. Tactical Overwatch is clearly a mission essential task that must be incorporated into 21<sup>st</sup> Century Army doctrine.

## **Chapter 4: 2-25 SBCT Case Study: Reorganizing into a Cellular based 21<sup>st</sup> Century Combat Force and Exploitation Tactics**

General Shinseki was the driving force behind the establishment of the Stryker Brigades that he intended to use as a model for restructuring the Army.<sup>68</sup> To General Shinseki these highly mobile and lethal organizations were not built for high intensity conflict or low intensity conflict per se, but were built as mobile, lethal, and adaptive organizations to deal with what he foresaw as a broad range of conflict in the 21<sup>st</sup> Century. The Stryker brigades were agents of change that the Chief of Staff of the Army (CSA) was going to use move the Army into the 21<sup>st</sup> Century. Illustrating how the 2-25th SBCT effectively organized to advance the ideas espoused by General Shinseki to make them more relevant for 21<sup>st</sup> Century warfare is critical to enhance future changes in the Army as it looks to the Future Combat System (FCS).

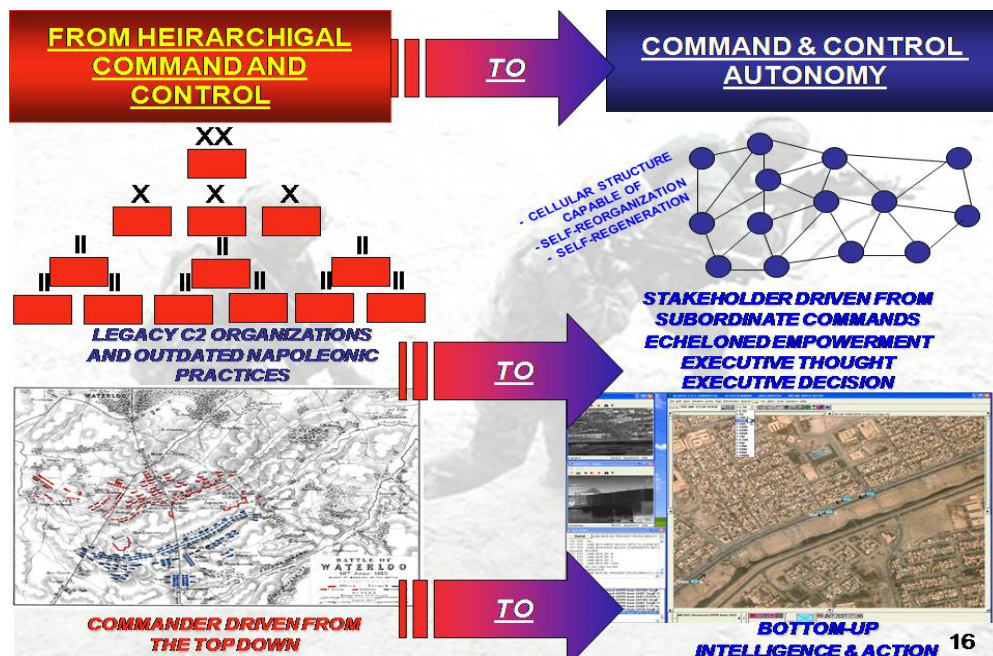
As discussed earlier, how leaders organize people, processes, and systems dictate the level of productivity in the 21<sup>st</sup> Century. The 2-25<sup>th</sup> Stryker Brigade realized that a radical change was required from the brigade level down to take advantage of the adaptive capacity of the organization to learn and to maximize the advantages that exploitation tactics would offer the brigade. Army organizations have a very robust staff at brigade level which is digitally connected and empowered. A much smaller staff exists at the battalion level in the U.S. Army. Ironically, the companies are the units who are actually doing the fighting and they do not have a staff, and do not have access to the tools needed to make sense of the complex environment that they operate in. U.S. Army company commanders do not have an S2, or an S3, or the technical systems required to make sense of the 21<sup>st</sup> century battlefield that they are a part of.

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<sup>68</sup> Steven Meyers, "Army is Restructuring with Brigades for Rapid Response", (New York Times online edition, Oct 13<sup>th</sup>, 1999) <http://query.nytimes.com/gst/fullpage.html?res=9C06E0DE1530F930A25753C1A96F958260&sec=&spon=&pagewanted=all> (accessed 31 January 2008).



To rectify this problem, the Brigade changed the way it organized in both garrison and combat to assist in “sense making” and to empower company commanders. As chart 4-1 highlights, success in 21<sup>st</sup> Century warfare requires a change from a “Formation” based organization construct that is centrally managed through traditional command and control to a cellular dissipative structure whose forte is decentralized command, control, and action that supports an exploitation strategy and ethos.<sup>69</sup>



**Figure 4-1: Transforming C2**

The Brigade identified several keys to success as it reorganized in order to exploit opportunities on 21st Century battlefields. The first was to develop an experimentation ethos across the brigade. The Stryker Brigade established an ethos that recognized this dramatic aspect of change and sought to encourage it at every opportunity. The SBCT created platoon and company intelligence cells, created an upper tactical internet capability at the company level, and fielded “non-standard” systems such as Axis Pro to each newly formed company exploitation

<sup>69</sup> COL Stefan J. Banach, “Exploitation Tactics: A New Doctrine for the 21<sup>st</sup> Century”, (School of Advanced Military Studies, 07 July 2007) slide 18

cell. The SBCT also sent its' Battalion Commanders to Harvard Executive Education courses and fundamentally changed how the brigade addressed all aspects of its training program which dramatically increased physical fitness, combat shooting, and medical training programs in the unit.<sup>70</sup>

The second key to success was to create an environment of collaborative discourse. Bottom up feedback was encouraged in a series of "Best Practices Forums" that were held periodically in the brigade. Unit leaders at all levels contributed to the discourse for change in Quarterly Training Briefs (QTBs) and other training venues.<sup>71</sup> The power of organizations is people. The challenge of leaders is to create an environment that maximizes the input that each individual is able to bring to the organizations collective understanding. As Dr. Jim Crupi, an expert on organizational change highlights, "the genius of the human mind is not constrained by rank, position, or age".<sup>72</sup> Collaborative discourse allows leaders to maximize the genius that is resident across the organization.

The brigade also sought to take advantage of the individual intellect of key members of the staff and to maximize the experience that senior officers and NCOs bring to the organization while leveraging the corporate knowledge that was already available and being shared in the Stryker community.<sup>73</sup> The chain of command recognized that the line companies, batteries, and troops, were the echelon of power for the organization and that they needed to be empowered through the reorganization of key command and control entities and that each of these units needed additional personnel and equipment to truly implement exploitation tactics which would

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<sup>70</sup> COL Stefan J. Banach, Interview with Author on 15 March 2008.

<sup>71</sup> Ibid.

<sup>72</sup> James Crupi, "Neon Buzz Leadership Seminar" (Felts Seminar Room, Fort Leavenworth, DEC 2007)

<sup>73</sup> COL Stefan Banach, Director, School of Advanced Military Studies, interviewed by author on 17 January 2008

allow the SBCT to be decisive on the 21<sup>st</sup> Century battlefield.<sup>74</sup> The brigade established a plan to connect the unit both vertically to the national intelligence agencies and horizontally to both deployed units in Iraq and to sister companies within the brigade. The end result was an organizational ethos that was innovative, accepted risk, encouraged exploitation, and was aggressive in its' aim to support units in contact on the battlefield.<sup>75</sup>

### **Organizing for Combat in the 21<sup>st</sup> Century?**

The 2-25<sup>th</sup> Stryker Brigade developed an aggressive plan to break the old paradigm of garrison verses combat operations. While the old army saying “train as you fight” is as popular as ever, in most regards nothing could be further from the truth. The Army doesn’t historically train as it fights, because in garrison, the Army is not organized or resourced as it fights, and leaders do not have access to the systems or information required to train units for the challenges of the 21<sup>st</sup> Century. Generally speaking, outside of the SOF community, organizations at battalion level and below have limited Secret Internet Protocol Router Network (SIPRNET) access in garrison, and while commanders may exchange e-mails as part of transition plan, the practices that exist in our garrisons do not facilitate a real learning experience for units that are scheduled to deploy to combat. The 2-25<sup>th</sup> SBCT developed an aggressive plan to facilitate this learning while they were still back at home station.

### **Digital Exploitation Cells**

The SBCT radically changed how it was able to see and understand the battlefield through the establishment of digital exploitations cells. As chart 4-2 depicts, the digital exploitation cells sought to establish an “open system” to provide access to the global information required to understand the complex environment down to the company level. Digital exploitation

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<sup>74</sup> Ibid., 27 February 2008

<sup>75</sup> Ibid.

cells were specifically designed to provide global access to the data that was required to gain an understanding of the complex environment of Iraq, provide persistent situational awareness and global reachback for subordinate elements, and established a virtual 21<sup>st</sup> Century digital gunnery range that allowed the unit to learn and adapt while preparing for combat operations.<sup>76</sup> The digital exploitation cells provided a secure internet link between battalions and companies to national and theater intelligence agencies, to units that were deployed in areas they expected to deploy to, and to their sister battalions and companies across the brigade.<sup>77</sup> The digital exploitation cells became the primary tools for the brigade to learn and adapt prior to deployment. The battalion and company leadership did not have to go anywhere to get connected to the global information grid (GIG) at the battalion level, and the way they operated in garrison allowed them to learn and adapt as the environment in Iraq changed on a daily basis.<sup>78</sup>

In addition to the physical structures that formed digital exploitation cells at the battalion level, the brigade also established company exploitation and intelligence cells and platoon intelligence officers. This cellular organization provided the brigade with the elements required to operate effectively in the 21st Century.

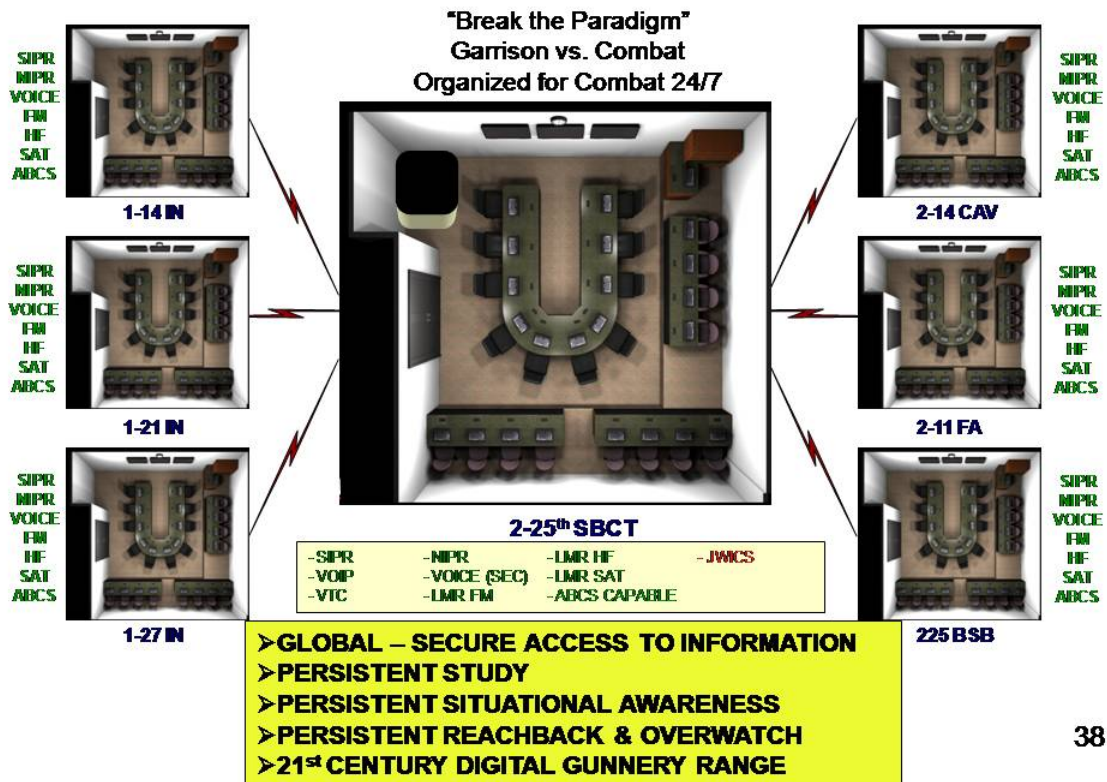
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<sup>76</sup> Stefan J. Banach, "Exploitation Tactics: A New Doctrine for the 21st Century", (School of Advanced Military Studies, 07 July 2007) slide 45

<sup>77</sup> Theater intelligence agencies are theater dependant. In the CENTCOM AOR the term includes MNCI, MNFI, CFLCC, and CENTCOM. National intelligence agencies refer to the 18 agencies that comprise the U.S. Intelligence community. For more information on the Intelligence Community refer to <http://www.intelligence.gov/1-members.shtml>.

<sup>78</sup> "DoD CIO Posts Architectural Vision for Global Information Grid" (U.S. Department of Defense News Release No. 1086-07, September 06, 2007), available online at <http://www.defenselink.mil/releases/release.aspx?releaseid=11302>. (Accessed 31 January 2008). The GIG is formally defined in existing DoD policy and described in the architectural vision. It is the combination of people, processes, and technology used for collecting, processing, storing, disseminating, and managing information throughout the DoD. It includes all departmental communications and computing systems and the interfaces to non-DoD mission partners. The GIG supports all DoD personnel and organizations, the missions, operations, and functions they perform, and the ability to exchange information within the department and with external mission partners.

## SBCT DIGITAL EXPLOITATION CELLS



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Figure 4-2: Digital Exploitation Cells

### Exploitation and Fusion Cells: Fighting in the 21<sup>st</sup> Century

The Brigade Tactical Operations Center (TOC) was reorganized to create a system that would maximize subordinate elements ability to assess and exploit information across a shared battlespace. The brigade sought to create an environment where the fusion and velocity of information sharing would enable it to act decisively inside of the enemy's decision cycle just as the SOF community was doing with the F3EA process. This entailed creating an open environment that not only allowed "sense making", but one in where the data was made available and shared collaboratively, at the point where it would enable the brigade to act decisively. This resulted in the brigade organizing not just to command and control subordinate units, but rather to empower the subordinate units to act based on a shared understanding of the environment. The

chart shown below depicts how the brigade established tactical exploitation and fusion cells.<sup>79</sup>

The exploitation cell was focused on the current fight and on creating conditions that allowed elements at the point of the spear to act decisively.

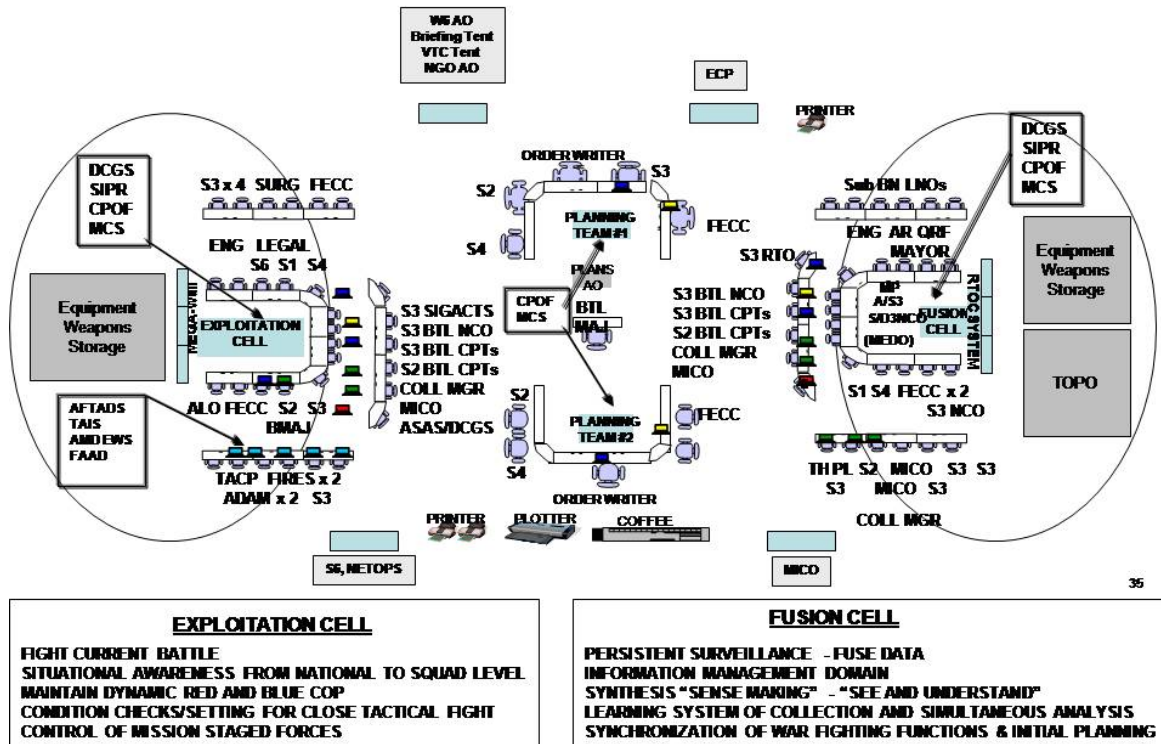


Figure 4-3: Brigade Exploitation and Fusion Cells (See Appendix 1 for larger diagram).

The Fusion cell is the sense-making element of the brigade TOC. This organization took advantage of the access to all source intelligence and a collaborative environment to synchronize the brigade's effort across warfighting functions. A key aspect of this organization is that the sense making is taking place on the TOC floor based on near simultaneous collaboration across the operational environment. The brigades' intelligence analysts are integrated into, not separated

<sup>79</sup> Ibid., Slide 47. While the chart depicts the Brigade Tactical Fusion Cell, Tactical Fusion Cells were also established at Battalion and Company Level and digitally connected to the Brigade, theater, and National systems

from (locked in a Secure Compartmented Information Facility) the fusion and exploitation process on the TOC floor.

The 2-25 SBCT sought to fundamentally change how it approached 21st Century warfare by taking advantage of the organizational ethos of change across the brigade. Just as Malcom Gladwell explains in *The Tipping Point*, what the 2-25 SBCT tried to create is an organization where new ideas and information are able to move around the organization, going from one person or one part of the group to the entire organization.<sup>80</sup> The brigade fundamentally understood that in the 21st Century the first priority must be to empower units to see and understand the enemy. Creating a capability where a company commander can see and understand the enemy can only be created if units are able to connect the company commander to persistent surveillance assets, to sister companies, and to the national level intelligence structure. It is only when this occurs that true sense making is able to take place. This is how leaders ensure that information is maneuvered to the time and place that it can be acted upon, or not, to achieve decisive results on the battlefield.<sup>81</sup> The next chapter will look at how an adaptive brigade size organization increased its effectiveness by enabling commanders at the platoon and company level to see and understand the battlefield to act decisively.

## **Chapter 5: Company Intelligence Support Teams: Maneuvering Intelligence at the Decisive Point**

109 company commanders who served in Iraq were recently surveyed about their combat experience. Those commanders were asked which of the following wartime experiences do you think would be most valuable to gain a deeper understanding of as a profession? Fifty eight percent of the commanders responded that developing a company intelligence cell or process

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<sup>80</sup> Malcom Gladwell, *The Tipping Point: How Little Things Can Make a Big Difference*, (Little, Brown and Company, New York and Boston, 2000) 191-192

<sup>81</sup> Stefan J. Banach, "Exploitation Tactics: A New Doctrine for the 21st Century", (School of Advanced Military Studies, 07 July 2007) slide 28



would be the most valuable experience that they could gain. This category received the second most responses (the experience of having a casualty was the highest).<sup>82</sup> The inability to process and utilize the information available was seen as a significant hindrance to successful combat operations. In the types of conflict that the Army is engaged in, and the types of conflict that will dominate the 21<sup>st</sup> Century, the data that is required for execution, is normally required at the company level or below.<sup>83</sup> The driving force behind the development of exploitation tactics is that the fight is not in the TOC, it is at the tip of the spear with company commanders and platoon leaders who need access to the data required to fight decisively. This begins with the creation of adaptive cells within organizations...Company Intelligence Support Teams (COISTs).

### **COIST Concept**

COISTs were designed to allow the brigade to operate distributively across the environment by enabling subordinate units to see and act decisively. The COIST filled a critical shortfall in what had been identified as an exploitation gap and an inhibitor to the sense making that is required in 21<sup>st</sup> Century Combat operations. The COIST links the company both vertically from the point of dominance through the battalion and brigade to the national level intelligence structure, and horizontally to the other units (sister companies, SOF, interagency, and coalition forces that are operating in the battlespace). The COIST was a concept initiated by 2-25 SBCT that had tremendous support from the Department of the Army G2 and across the intelligence Community.<sup>84</sup> Chart 5-1 is an overview of the COIST concept and will be used as a starting

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<sup>82</sup> “Top Challenges of Army Company Commanders in Iraq”, (Army Magazine, September 2007),

<sup>83</sup> This point on intelligence for 21<sup>st</sup> warfare being required at company level and below is the authors, but is supported by the company intelligence cell products from both the Army and the Marine Corps, The results of the COIST experiment, and other documents that are reference during the course of the study.

<sup>84</sup> This monograph specifically addresses the COIST concept employed by the 2-25 SBCT. Other organizations in the U.S. Army and US Marine Corps have created ad hoc organizations similar to the COIST discussed here.



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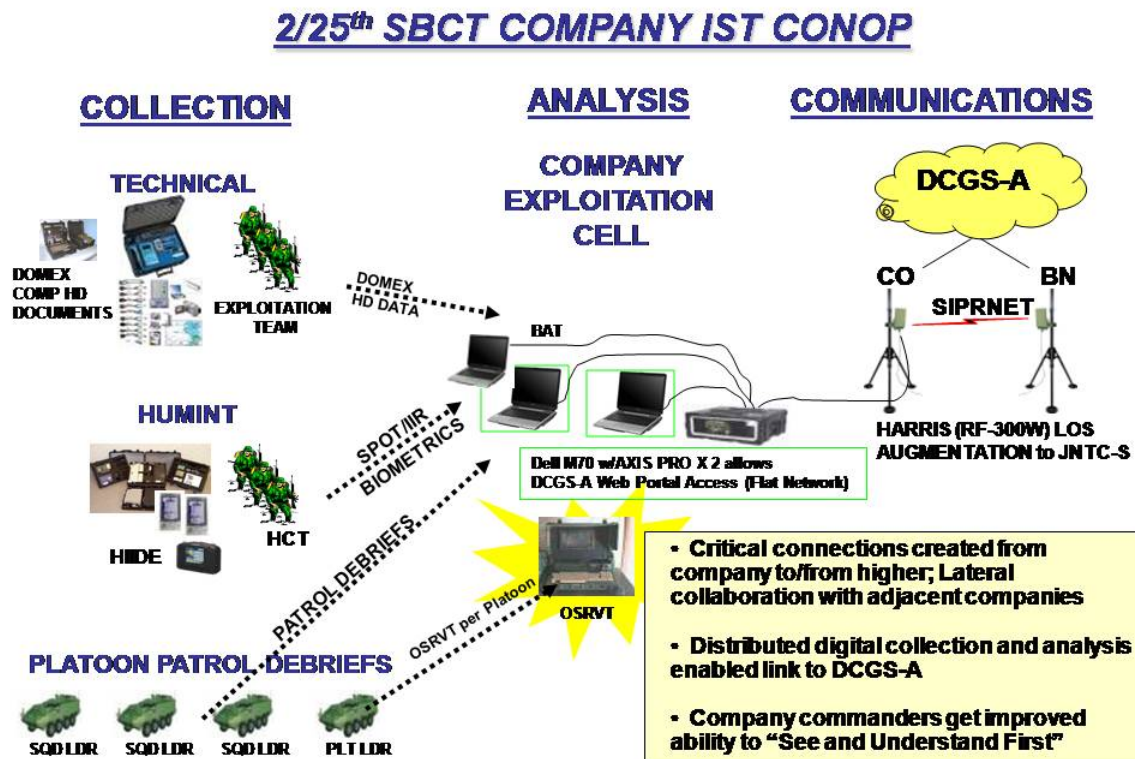


Figure 5-1: Company IST Concept

to discuss several innovations embedded in the program.<sup>85</sup> As chart 5-1 depicts, the COIST provides the critical linkage from collector through the company, where it feeds the theater database in near real time. This data is maneuvered both ways, so in addition to feeding the theater database, which feeds the national systems, the data is pushed back to the company level where it is "made sense of" and acted upon. There are several key innovations that make this "sense making" possible.

<sup>85</sup> United States Department of the Army G2, "Company Intelligence Support Team (IST) Feedback: NTC Rotation 07-01", OCT 2007, slide 3. Initial slide packet was marked For Official Use Only, slide cleared for general release after consultation between the author and DA G2 project officer with slight modifications.

As noted earlier, the speed at which information is shared is what matters in the 21<sup>st</sup> Century. Historically, units have had access to large amounts of information at each echelon of command but have lacked the ability to share that information in real time. While the transformation of our divisional structure created a more lethal and capable brigade C2 element, it did little to solve the problem at company level. As J.D. Heye states while writing about company intelligence cells in the Marine Corps...in the kind of fight that is more bottom up than top down... “The company-not the battalion, not the regiment, not the division, not the MEF- will have and must have the most complete picture of their battlespace”.<sup>86</sup> The 2/25<sup>th</sup> SBCT created the COIST to increase the intelligence collection, exploitation, and analysis at company level and below in order to provide a complete picture of the battlefield. The first hurdle that the SBCT had to overcome was manning. While the Army is transforming, that transformation has not occurred at a pace that is able to keep up with demands of 21<sup>st</sup> Century warfare. The 2-25<sup>th</sup> SBCT utilized the dissipative capacity of the organizations to change in order to meet the demands of the environment it would operate in.

The 2-25 SBCT formed COISTs by repositioning personnel from established MTOE positions and embedded them in the exploitation cells that were created at the company level.<sup>87</sup> This was generally achieved by utilizing the company, troop, and battery enlisted members of the organization in the respective command posts in a non-traditional role as company S2s. The brigade also created platoon S2s by augmenting the platoon headquarters with tactical HUMINT teams that could perform a dual role as both HUMINT collector and platoon S2.<sup>88</sup>

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<sup>86</sup> J.D. Heye, “Company Intelligence Cell Comments”, (unpublished, MAR 2007), 1

<sup>87</sup> Company, Battery, and Troops formed COISTs and Platoon S2s.

<sup>88</sup> William J. Hartman, The data on the composition of the COISTs and PLT S2s was collected during a visit by the author to NTC in SEP 2007. While each battalion, company, and platoon has organized in a slightly different fashion, the use of FSOs, FSNCOs, EMs, and HUMINT collectors was common in the units that were sampled. This practice has been common in all NTC rotations that have occurred after the 2-25 SBCT rotation and is only accomplished by diverging from the existing MTOE.



intelligence” at the time and place that it was required in order to make sense of and exploit the complex environment.

The company exploitation cells will always be established and manned in accordance with the tactical situation. The aim of the company exploitation cell is to fight on target with the company commander, first sergeant, and executive officer forward leading all combat operations and actions.<sup>91</sup> Company exploitation cells are not meant to keep the chain of command at a fixed location in combat, leaders need to be forward at the point of contact; exploiting tactical opportunities as they emerge. The brigade had to field non-standard automation toolkits to provide this connectivity.

### **The COIST Toolkit**

The COIST “toolkit” included the following systems: A Harris Radio (SIPRNET LOS), One System Remote Video Terminals (OSRVT), Handheld Interagency Identity Detection Equipment (HIIDE), Biometric Automated Toolset (BAT), Axis Pro and CELLEX. Each of these capabilities helped to remedy the lack of increased intelligence collection, exploitation and analysis at the company level.<sup>92</sup> This toolkit provided the technical systems that allowed the COIST to link operations from the collector at the platoon level, through the Battalion and Brigade, to the national agencies.

The 2-25 SBCT established a Line of Sight (LOS) Secure Internet Protocol Network (SIPRNET LOS) capability at the company level using the commercially available Harris RF-300

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<sup>90</sup> Ibid.

<sup>91</sup> COL Stefan Banach, Director, School of Advanced Military Studies, interviewed by author on 17 January 2008

<sup>92</sup> Department of the Army G2 “Information Paper, 2/25 SBCT Company Intelligence Support Team (COIST) at NTC”, 19 DEC 2007

Radio.<sup>93</sup> This radio was successful in providing a low cost secure broadband capability to forward deployed Combat Out Posts (COPs) and Joint Security Stations (JSS). The Harris Radio had an advertised range of 50KMs and a data transfer rate of 20 mega bytes per second and was generally successful in meeting the COIST requirement. This radio system improved the ability to quickly maneuver actionable intelligence and operational products (via ABCS files, PowerPoint, Word) to company commanders. The SIPRNET LOS backbone enabled the COIST to pass digital biometric data, link diagrams, patrol debriefs, and any other relevant data both vertically and horizontally in near real time. The SIPRNET LOS backbone, in conjunction with several software innovations, significantly improved both the quality and speed of intelligence dissemination and provided a much-needed “Upper Tactical Internet” at the company, battery, and troop level across the SBCT.<sup>94</sup> These innovative adaptations by the SBCT represent a significant step forward in the Army G2’s plan to bridge the last tactical mile.<sup>95</sup>

The All Source Analysis System-Light (ASAS-L) is the Army approved, fielded, and tactically deployable intelligence and electronic warfare (IEW) system that provides a command-level view of the enemy forces. While the ASAS family of systems has been around for nearly twenty-four years, the Army has not been effective at maximizing its capabilities to contribute to the common operating picture.<sup>96</sup> The primary reason for this lack of effectiveness is that the system usually resides at the brigade level or higher, has to be manually fed by a higher

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<sup>93</sup> The brigade used the commercial version of the Harris Radio called the Redline AN 80i for the NTC rotation. The unit was fielded the Line-of-Sight Tactical Communications System (Harris RF7800W) for operations in Iraq. This is essentially the mil spec version of the commercial radio.

<sup>94</sup> COL Stefan J. Banach, Director, School of Advanced Military Studies, interviewed by author on 17 January 2008

<sup>95</sup> Department of the Army G2 “Information Paper, 2/25 SBCT Company Intelligence Support Team (COIST) at NTC”, 19 DEC 2007

<sup>96</sup> According to the Federation of American Scientists (FAS) the ASAS Block I was introduced in 1984 at the division and Corps level, Information can be accessed at <http://www.fas.org/irp/program/process/asas.htm>. (Accessed 23 December 2007).

headquarters, and manually disseminated below battalion level.<sup>97</sup> The Axis Pro (AXP) software employed by the 2-25 Stryker brigade allows ASAS interoperability to the company level, the level where the data is actually required for action. Axis Pro addresses an air gap between ASAS at the Brigade level and above and the automation systems at the company level and below.

AXIS PRO is a visualization tool that provides a multi-intelligence analysis toolset. AXIS PRO provides integrated analysis, data management, and intelligence visualization capabilities at the company level. AXIS PRO aids the analyst in the process of creating intelligence from massive amounts of information. This program is compatible with most windows platforms, and allows the COIST to interoperate with the ASAS-L database, analyst notebook, and most windows based applications.<sup>98</sup> Axis Pro provides an interface between the COIST, through the battalion and brigade, back to the theater Distributed Common Ground Station-Army (DCGS-A) database.

Chart 5-3 highlights how the company intelligence cell was able to maneuver data digitally from the COIST to the brigade utilizing the Axis Pro software.<sup>99</sup> The next innovation that the brigade was able to achieve was to enable the company and platoon leaders to exploit opportunities on a target, where the information has the most relevance.

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<sup>97</sup> This is the opinion of the author and is based on his experience as a G2 and S3 in OIF I, as a J2 in Afghanistan for 18 months from 2004-2007, and as a Battalion, Brigade, or Regimental S2 for 8 years to include 6 CTC rotations.

<sup>98</sup> Overwatch Textron Systems, "Analysis and exploration of Information Sources Professional", <http://www.tactical.overwatch.com/axispro.asp> (accessed 21 December 2007)

<sup>99</sup> "2-25 intelligence support team (IST) Standard Operating Procedure (SOP)", (Unpublished Unit Standard Operating Procedure, 2007), slide 9. Axis Pro is not currently being used in Iraq by 2-25 SBCT due to the fact that the theater architecture utilizes TiGRNET in place of Axis Pro. TiGRNET is providing a similar functionality at the battalion and company level and is currently being digitally integrated with the flat data access DCGS-A network through a process that is similar to the AXP data exchange. For more information on TiGRNET see <http://www.nationaldefensemagazine.org/issues/2007/May/ArmyWantSensor.htm>.



## DATA EXCHANGE BETWEEN INFANTRY COMPANY (AXP) AND BRIGADE (ASAS-L)

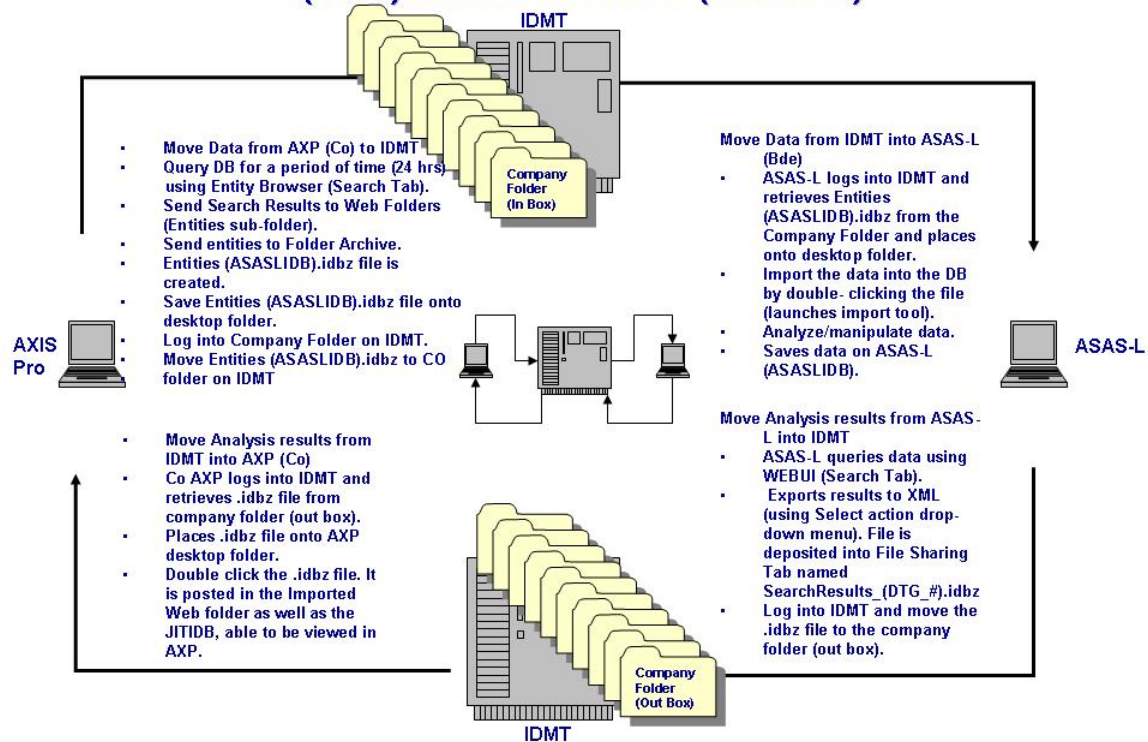


Figure 5-3: Data Exchange Using Axis Pro

### Exploitation on Target

A key component of the F3EA process discussed earlier is an understanding that the battlefield is not linear. The result of our actions should be an immediate greater understanding of the complex operational environment, and an ability to act with greater fidelity at a time and a place that is most disruptive for the adversary. This requires that information be exploited forward on a target to provide an almost instantaneous ability to act with greater fidelity along multiple lines of operations. There are examples where units in combat have been able to exploit information forward on a target and conduct multiple follow-on operations by exploiting information while maintaining situational awareness across a complex operational

environment.<sup>100</sup> Units are only able to effectively do this by exploiting information where it is most relevant...on the target.

The 2-25 SBCT identified a requirement to collect, exploit, and analyze a wide range of material forward on the target in order to allow companies to operate effectively. In the 21st Century, this no longer means just documents, but includes computers, cameras, personal communication equipment, and numerous other electric devices that have proliferated as a result of globalization. While the exploitation of this information was traditionally the purview of intelligence soldiers, units are not manned to accomplish this on the objective given the explosion in technologically sophisticated devices available to our adversaries. The brigade accomplished this again by utilizing the adaptive capacity of the organization.

The 2-25 SBCT fielded Document and Materials Exploitation kits (DOCEX/MATEX) exploitation kits down to company level. These kits and the creation of exploitation teams that are integral to each maneuver element provide the ability to properly analyze, document, and exploit information forward on a target. This information is shared through the COISTs, to the Brigade, and fed to the national systems in near real time. This process significantly improves the company commander's ability to make sense of the target he is dealing with without having to go back to the Forward Operating Base (FOB), Joint Security Site (JSS), or Combat Outpost (COP).

The 2-25 SBCT was also fielded the Biometric Automated Toolset and Handheld Interagency Identity Detection Equipment (BAT/HIIDE) to support target exploitation. The BAT collects fingerprints, iris scans, takes facial photos and biographical information on persons of

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<sup>100</sup> BG Robert P. Brown, "The Agile Leader Mindset, Leveraging the power of modularity in Iraq". (Military Review, 87(4), 2007), 32. BG Brown highlights that units were able to accomplish this by converting large amounts of information in actionable intelligence inside the enemy's decision cycle. This is consistent with the authors experience in Afghanistan where multiple operations were able to be conducting by exploiting information far forward on a target.



interests in the operational area.<sup>101</sup> There are currently over 2,000 BATs systems deployed with over 560,000 biometric enrollments. The SBCT also incorporated the HIIDE system which is a lighter weight system designed to be deployed forward on a target that is interoperable with the BAT system for data exchange back to the DoD biometrics Data repository.<sup>102</sup> These systems enabled the 2-25 SBCT to push the capability to conduct multimodel collection and matching on the target to support a greater understanding of the environment. Moreover, the ability to connect the commander on the target to persistent surveillance assets creates a brigade that is able to operate as thirty lethal dispersed companies that operate simultaneously across the entire units battlespace vice six distinct battalion level organizations.

### **Persistent Surveillance: Making sense in the 21st Century**

As previously discussed, the unblinking eye or persistent surveillance is required to make sense of what is occurring on the battlefield. It is not possible to see and understand first, and to act decisively, if Full Motion Video (FMV) from ISR assets is being viewed in the brigade TOC, translated from video to text, words, or still images, and then sent forward to a company commander or platoon leader who must act decisively (or choose not to) based on the data he is receiving. The person who is in the best position to make sense of this data is the ground commander; the COIST concept is taking a great step to maneuver the data to the company commander on the ground with the One System Remote Video Terminal (OSRVT). The OSRVT is an innovative modular video and data system that enables warfighters to remotely downlink live surveillance images and critical geo-spatial data directly from joint operations tactical UAVs,

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<sup>101</sup> Biometric Automated Toolset (BAT) and Handheld Interagency Identity Detection Equipment (HIIDE): Overview for NIST XML & Mobile ID workshop, Biometrics Task Force, PPT Briefing, 19 SEP 2007, slide 2.

<sup>102</sup> Ibid., slide 3

theater assets, and from manned assets with Litening pod platforms.<sup>103</sup> The planned fielding of fifty-two OSRVs to platoon level in 2-25<sup>th</sup> SBCT ensures that the combat leader who is in the best position to understand the complex environment actually has access to the data required to do so. The addition of the Tactical Handheld Digital Devices (THDD) takes this idea to the next level.

THDD is an acronym used to identify a family of tactical communications devices currently being used by the warfighter in Iraq and Afghanistan. THDD and Tactcomp are often used synonymously.<sup>104</sup> The 2-25 SBCT fielded the 1<sup>st</sup> Battalion, 21<sup>st</sup> Infantry Regiment (Gimlets) with the TACTICOMP for their Mission Readiness Exercise at NTC. The TACTICOMP is a Wireless and GPS enabled military hand-held computer designed for field use.<sup>105</sup> The TACTICOMP was able to successfully interface with OSRV, Long Range Advanced Scout Surveillance System (LRAS) and the Stryker Remote Weapon System (RWS) allowing Full Motion Video (FMV) to be pushed down to squad leader handheld devices and vehicle/TOC mounted workstations. The Brigade was fielded Tactcomps down to squad leader level for combat operations in Iraq. These devices will provide connectivity from the squad leaders to tactical and theater intelligence assets. The backbone that has been established to support persistent surveillance is effective given the innovation of the processes involved in making the systems available at the lowest levels within the SBCT. The same capability needs to be given to the rest of the Army modular brigades.

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<sup>103</sup> One System Remote Video Terminal, Delivering Real Time Surveillance Directly to the Soldier, AAI Corporation, Hunt Valley, MD 21030-0126, available online at [http://www.aaicorp.com/New/UAS/OSRV\\_08-28-07.pdf](http://www.aaicorp.com/New/UAS/OSRV_08-28-07.pdf) (accessed 21 December 2007)

<sup>104</sup> United States Army Deputy Chief of Staff for Intelligence, "Tactical Handheld Digital Devices" (THDD), (Unpublished Information Paper, MAR 07)

<sup>105</sup> Tactcomp 6 Production Description, Sierra Nevada Corporation. Available online at <http://www.sncorp.com/prod/c4n/int4/tactcomp6.shtml> (accessed 21 December 2007)

Chart 5-4 provides an overview of what the 2-25 SBCT was able to establish.<sup>106</sup> The Harris Radio SIPRNET LOS, OSRVTs, and TACTICOMPs provide the communication backbone for the Stryker Brigade to operate in a distributive environment. The addition of Axis Pro software provides a software solution to the problem of ASAS-L or DCGS-A access at company level. The internal reorganization (dissipative nature) at the brigade, battalion, company, and platoon level enabled the unit to take advantage of the opportunities offered by these technological innovations. This resulted in a cellular based organization that was able to link forward elements on the target, through the brigade, to the national level intelligence agencies supporting the fight.

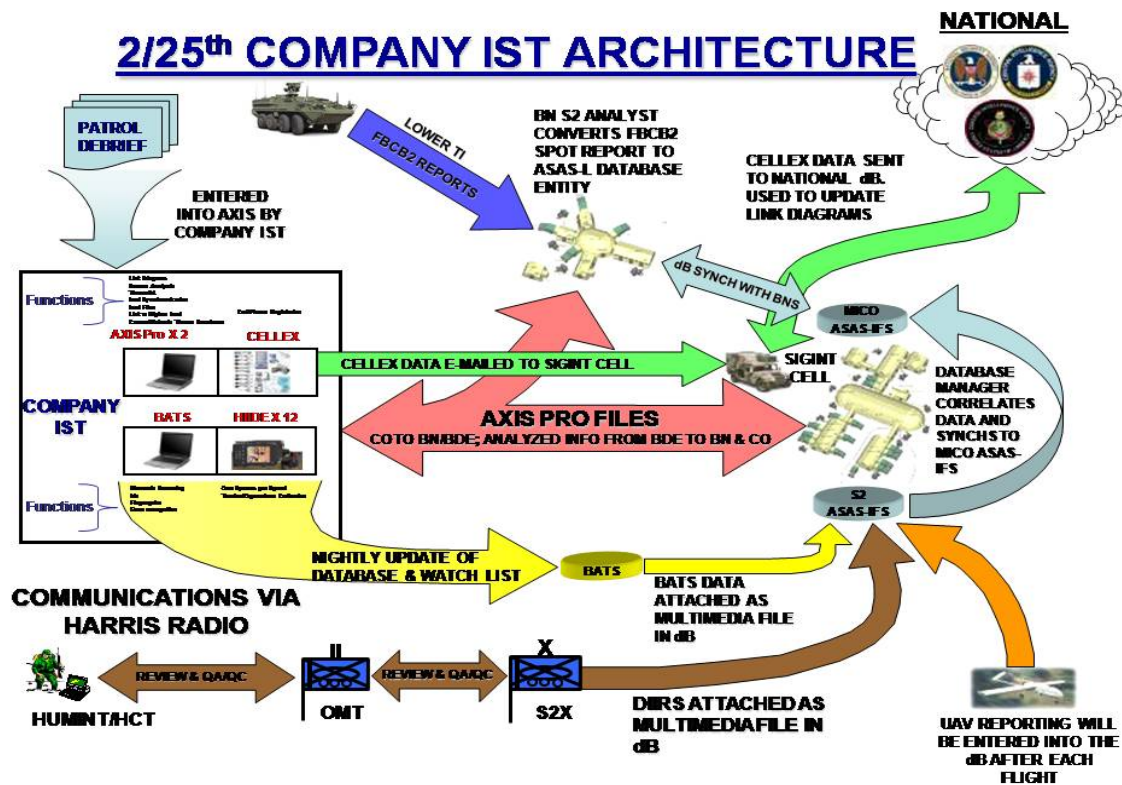


Chart 5-4: Company IST Architecture (For a blowup of this diagram see Appendix 3)

<sup>106</sup> United States Department of the Army G2, "Company Intelligence Support Team (IST) Feedback: NTC Rotation 07-01", OCT 2007, slide 3. Initial slide packet was marked For Official Use Only, slide cleared for general release after consultation between the author and DA G2 project officer with slight modifications.

The final critical component of the Company Exploitation Cells and COISTs was the integration of knowledge management SOPs at platoon, company, battalion, and brigade level. This detailed SOP established protocols for creating, sharing, and maintaining routine reports across the brigade.<sup>107</sup> This knowledge management SOP assured that the data that was collected on the battlefield could simultaneously be shared with both higher headquarters and adjacent units. In addition to the digital report formats, the SBCT created virtual local area networks that facilitated sharing of information across the command.

### **Results of the COIST Experiment**

Initial results from 2-25 SBCTs NTC rotation indicate that the COIST concept was successful in increasing the intelligence collection, exploitation and analysis at the assault company level and below. The COIST “Toolkit” enabled the digital exploitation of HUMINT, SIGINT, IMINT and All-Source intelligence from the objective, up to higher headquarters, and back down to the assault company commander. The COIST concept also increased lateral collaboration and was moderately effective at eliminating stovepipes at the various echelons of command.

While it is impossible to simulate the complex environment of Iraq at the National Training Center (NTC), the NTC did provide an adequate environment to analyze the feasibility/usefulness of the COIST concept. The 2-25 SBCT was able to achieve a basic COIST integration that will improve over time. Specifically, the SBCT was able to integrate twenty BATs at the Company and Battalion level and sixty-two HIIDE devices. The SBCT was able to pass biometric data from the company level and synchronize it with the Divisional BATs

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<sup>107</sup> “2-25 intelligence support team (IST) Standard Operating Procedure (SOP)”, (Unpublished Unit Standard Operating Procedure, 2007),

server.<sup>108</sup> The SBCT was able to establish the Harris LOS SIPRNET and pass data between company COPs and JSSs as planned.<sup>109</sup> The SBCT was also able to effectively utilize the Axis Pro software and to increase the ability to analyze and exploit information at the company level, while providing inputs to and receiving data from the brigade ASAS-L.<sup>110</sup> The OSRV and TACTICOMP successfully connected maneuver elements to the squad level vertically with ISR assets and higher headquarters, and horizontally with other elements operating in the battlespace. The addition of the OSRVs and Tacticomps were cited from platoon to BCT level as significantly increasing the ability to see and understand the enemy.<sup>111</sup> The DOMEX/MATEX capability was not significantly tested at NTC given the current limitation of the training environment but the SBCT was able to conduct limited exploitation on target for the first time at NTC.

The results from the 2-25 SBCT COIST experiment at NTC are promising and validate the COIST concept. Based on these results, the following improvements are likely during 2-25 SBCT operations in OIF:

1. Increased exploitation on given targets to National intelligence agencies and laterally across the brigades operational environment.
2. Increased biometric collection and exploitation capability at company and below.
3. Increased secure digital communications at the company level.
4. Increased FMV exploitation using the OSVRT at the platoon level.
5. "Flat Network" Intelligence access to DCGS-A Portal at Company level.<sup>112</sup>
6. Improved squad/platoon situational awareness via the THDD with the ability to link Unmanned Aerial Systems (UAS) and the LRAS RWS with dismounted infantry and the Stryker vehicles using the THDD.

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<sup>108</sup> United States Department of the Army G2, "2/25<sup>th</sup> SBCT Company Intelligence Support Team (COIST) at NTC", (Information Paper, 19 DEC 2007)

<sup>109</sup> Ibid.

<sup>110</sup> Ibid.

<sup>111</sup> United States Department of the Army G2, "2-25 DOTMLPF NTC Observations", (Internal Briefing Document, Oct 2007), slide 14. Initial slide packet was marked For Official Use Only, slide cleared for general release after consultation between the author and DA G2 project officer with slight modifications.

<sup>112</sup> The DCGS-A database was not replicated during the NTC rotation. The COIST was successful in transferring data between the COIST and the ASAS-L at Brigade level.

7. Improved intelligence reporting from company to higher using the COIST Communications package.
8. THDD (Tacticomp) with wide band on the move (WBOM) provides interoperability between two deployed SBCTs in OIF (2SCR and 2-25 SBCT).<sup>113</sup>

The 2-25 SBCT deployed to Iraq and conducted transfer of authority in January 2008. The Army G2 and Army Test and Evaluation Command will continue to evaluate the COIST results during combat operations. As stated above, the COIST concept is being utilized in Iraq and Afghanistan and already has implications for future Army doctrine, manning, and training.

The success achieved by the 2<sup>nd</sup> SBCT leadership team was a result of a command climate that encouraged innovation, experimentation, and risk taking. The ideas employed by the SBCT were adaptive and facilitated decentralized command, control, and exploitation as a strategy and ethos that was embraced by the leadership of the SBCT. These are but a few of the essential qualities and endeavors of a 21<sup>st</sup> Century “cellular” combat brigade and serves as a model for others to emulate, learn from, and improve on, for the good of the Army.<sup>114</sup>

## **Chapter 6: Implications for Change in the Army**

### **U.S. Army Doctrine**

The U.S. Army published a new version of FM 3.0 “Full Spectrum Operations” in February 2008. FM 3.0 recognizes that in this new era of persistent conflict, the U.S. Army must have the ability to conduct offensive, defensive and stability operations simultaneously. This is a significant step in the right direction that recognizes that operations in the 21<sup>st</sup> Century will likely be non-linear and will not proceed logically from one phase to the next. While this is definitely a step forward, the FM is still more suited as a guide for planning large-scale conventional

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<sup>113</sup> United States Department of the Army G2, “2/25<sup>th</sup> Stryker Brigade Combat Team (SBCT) Company Intelligence Support Team Concept”, (Information Paper, 03 DEC 2007). The G2 information paper recognized the improvements numbered 2-8. The first improvement was highlighted by COL Banach during an interview with the author on 17 JAN 2007.

<sup>114</sup> COL Stefan J. Banach, Director, School of Advanced Military Studies, interviewed by author on 17 January 2008

operations on the plains of Europe vice a guide for operation in the 21<sup>st</sup> Century.<sup>115</sup> Field Manuals specific to employment of BCTS (Infantry, Heavy, Stryker) at a minimum must address the following areas under the context established by FM 3.0:

1. Army doctrine should focus on exploitation tactics and recognize that Commanders are responsible for creating an environment that empowers subordinate units to see and understand the enemy in order to act decisively.
2. That brigades are manned, trained, and equipped to employ dispersed, informed, lethal companies operating as part of a joint and interagency community. This includes the establishment of COISTs manned with intelligence soldiers.<sup>116</sup>
3. That company, troop, and battery headquarters need to be reorganized and manned for 21<sup>st</sup> Century cellular warfare.

### **Maneuvering Intelligence and Exploitation Tactics**

The Army has made significant gains in recent years in its attempt to maneuver intelligence to the point that it is most relevant. The “every soldier a sensor initiative”, tactical overwatch program, and fielding of DCGS-A all reflect qualitative steps forward in the attempt to empower organizations to act decisively at the company level and below.<sup>117</sup> The COIST experiment demonstrates how intelligence can be maneuvered to the time and place where it can best be acted upon. The Fusion Cells both in theater and in deploying and deployed units provide an example of how to empower organizations both vertically and horizontally while not increasing the layers of command and control or bureaucracy. These improvements are significant, and are having tangible benefits for soldiers fighting in Iraq and Afghanistan, but the Army still has a long way to go.

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<sup>115</sup> Douglas V. Johnson, “Doctrine That Works”, (U.S. Strategic Studies Institute at the US Army War College), <http://www.strategicstudiesinstitute.army.mil/pdffiles/PUB724.pdf>. (Accessed 21 DEC 2007)

<sup>116</sup> United States Department of the Army G2, “2/25<sup>th</sup> Stryker Brigade Combat Team (SBCT) Company Intelligence Support Team Concept”, (Information Paper, 03 DEC 2007).

<sup>117</sup> SGM Joseph J. Paul “Know your surroundings” (INSCOM Journal, Vol 30, No 3, Summer 2007), 5. CSM Paul describes every Soldier a Sensor as the Army’s initiative to improve every Soldier’s ability to detect change and to collect and report information of potential intelligence value.

The innovations and initiatives highlighted above and explained in Chapters 4 and 5 have made a significant amount of data available to brigade, battalion, and company commanders. This data had been previously stovepiped and was often not getting to where it was most needed on the battlefield. General Cartwright highlighted the future challenge at the Geospatial Conference in October 2007. The current intelligence collection model provides access to the data that one could gain commercially through google or yahoo, but what is needed is the ability to let the customer decide what data they want access to.<sup>118</sup> The challenge now that data access has been made available at the company level, is to determine how to provide “the right data”, based on commander requirements, to enable dispersed and decisive operations at the lowest level. The Army and Joint force needs to move forward with the development of a dynamic mission-centric information management system that enables commanders at all levels to effectively lead on the rapidly changing battlefield of the 21<sup>st</sup> Century. This system would likely take advantage of a metadata tag language such as Extensible Markup Language (XML) that would ultimately allow the data to be fused and maneuvered at all echelons of command in a dynamic and rapidly changing environment using standard unit system architecture. The Joint force needs to develop an interoperable Command and Control System that allows for simultaneous data exchange between a commander, subordinate units, and other organizations without manual entry of data.<sup>119</sup> The ability to fuse and maneuver intelligence without manual

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<sup>118</sup> James E. Cartwright, Defense Link News Article, “Vice Chairman Talks at Geospatial Conference”, Oct 23, 2007, available online at <http://www.defenselink.mil/news/newsarticle.aspx?id=47895> (Accessed 12 Jan 2007)

<sup>119</sup> Dr. Michael R. Hieb, J. Mark Pullen, William P. Sudnikovich, and Dr. Andreas Tolk, “Developing Battle Management Language into a Web Service” (Paper 04S-SIW-113-Sprng 2004) 1-3. This paper offers a methodology for developing standard doctrinal terms and allowing them to be accessed as a web page as a Battle Management Language. See Also Thomas Potok, Laurence Phillips, Robert Pollock, and Andy Loeb, “Suitability of Agent Technology for Military Command and Control in the Future Combat System Environment”. The authors explore the viability of current technology to support the FCS system. Available online at: <http://www.csm.ornl.gov/~v8q/Homepage/Papers%20Old/FISTAgentWhitePaper-ApprovedFinal.pdf> (accessed 28 FEB 2008)



data entry is absolutely critical to effective 21<sup>st</sup> Century Combat Operations. All of these innovations must also consider coalition integration and interoperability.

### **Leadership in the 21st Century Security Environment?**

In the 21<sup>st</sup> Century, it is simply not possible to effectively command and control units using a linear based approach to problem solving. As discussed in Chapter 2, leaders can no longer only use their experience to understand the complex environment while devising a plan of action. As Nassim Taleb points out in *The Black Swan*, “we tend to treat knowledge as our personal property to be protected and defended”.<sup>120</sup> This is historically how our hierarchal military organizations were led. Taleb further points out that what people don’t know is far more important than what they do.<sup>121</sup> The challenge for future command and control initiatives is to create an organization where subordinate leaders have been empowered to act both vertically and horizontally to access the information that allows them to make sense of the environment that they are operating in. Army organizations are not going to be successful unless a command climate is created based on collaborative discourse that empowers subordinate elements.

### **Organizing the force in the 21<sup>st</sup> Century Force?**

In *The Starfish and The Spider*, the authors tell the story of how the Spanish Army was able to defeat the highly organized Aztecs in only a few short years but was unable to defeat the Apache Indians over the next 200 years.<sup>122</sup> The centralized Spanish system was simply ineffective in dealing with the decentralized Apache system. The authors explain what they call the first major principle of decentralization, that when attacked, a decentralized system tends to

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<sup>120</sup> Nassim, Nicholas Taleb, *The Black Swan*, (Random House, New York, 2007), 1.

<sup>121</sup> Ibid., xix

<sup>122</sup> Ori Brafman and Rod Beckstrom, *The Starfish and the Spider: The Unstoppable Power of Leaderless Organizations*, (Portfolio, Published by the Penguin Group, 2006), chapter 1

become more open and decentralized.<sup>123</sup> The Spanish experience with the Apaches is very similar to what the U.S. experienced in Iraq and Afghanistan. While it was relatively easy to defeat the Iraqi Army and the Taliban it has been extremely difficult to deal with the decentralized insurgencies in each country. If the Army is going to operate effectively in the 21<sup>st</sup> Century, against technological savvy non-state actors enabled by globalization, units need to form cellular based organizations that are empowered to act decisively. Organizations like the 2-25 SBCT and the elements of the SOF community conducting combat operations in the CENTCOM AOR provides concrete examples to guide that change.

### **Combat multipliers: Empowering units at the Company Level**

The fight is not in the TOC. The 2-25 SBCT provides a solid blueprint for where and how to emplace enablers to decisively operate in the 21<sup>st</sup> Century. Army Transformation has produced a modular brigade centric Army that provides significant improvement over the division centric structure that preceded it. That said, the current formation construct does not adequately empower units to execute decisive operations at the company level and below. This new brigade centric organization should be modified to place more enablers at company level to allow the company commander to act decisively in the 21<sup>st</sup> Century. These enablers include COISTs, Platoon S2s, and exploitation teams with associated technical systems described earlier that allows for exploitation on a target where the information has the most significance in 21<sup>st</sup> Century warfare. These enabled companies should be digitally connected to Fusion Centers that contain a mix of DoD and inter-agency experts that support holistic operations designed to achieve the nested objective.

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<sup>123</sup> Ibid., 21

## Chapter 7: Conclusion

Globalization “continues to change” the world in which the Army, Joint, and Coalition forces operate. While the current fights in Afghanistan and Iraq are evidence of that change, the problem is more significant than that. The world has changed, and is changing at a rate that the Army’s hierarchal and bureaucratic systems are not prepared to deal with. Globalization is driving this change and will become more vice less pervasive as the Army moves toward 2020 and beyond. The Army does not simply have to modify its organizations to operate in a new environment as doctrine would suggest, it has to fundamentally change organizations and methodologies for waging warfare in a manner that is able to adapt to an environment that is an ever changing complex adaptive system.

The U.S. Army is not large enough to meet the global commitments that our nation faces. The conflicts in Iraq and Afghanistan have placed us in a position of strategic risk that increase the likelihood that terrorists enable by globalization will conduct another 9/11 type attack. As General Casey states, “we are at war against a global extremist network that is out to attack and destroy our way of life.... they are going to have to be defeated...and it’s a long-term ideological study”.<sup>124</sup> The current plan to grow the Army by 74K personnel and increase the active duty combat brigades to 48 is a positive step that will go a long way to reverse the negative trends that are placing the nation at strategic risk.<sup>125</sup> This plan will not produce the long-term desired affect if it ultimately results in a 48 brigade CONUS based Army.

In the 21<sup>st</sup> Century, it will not be possible for the U.S. to divorce itself from the global responsibility required in this era of ubiquitous globalization. The U.S. Army and inter-agency community must maintain a persistent forward global presence that allows for a better

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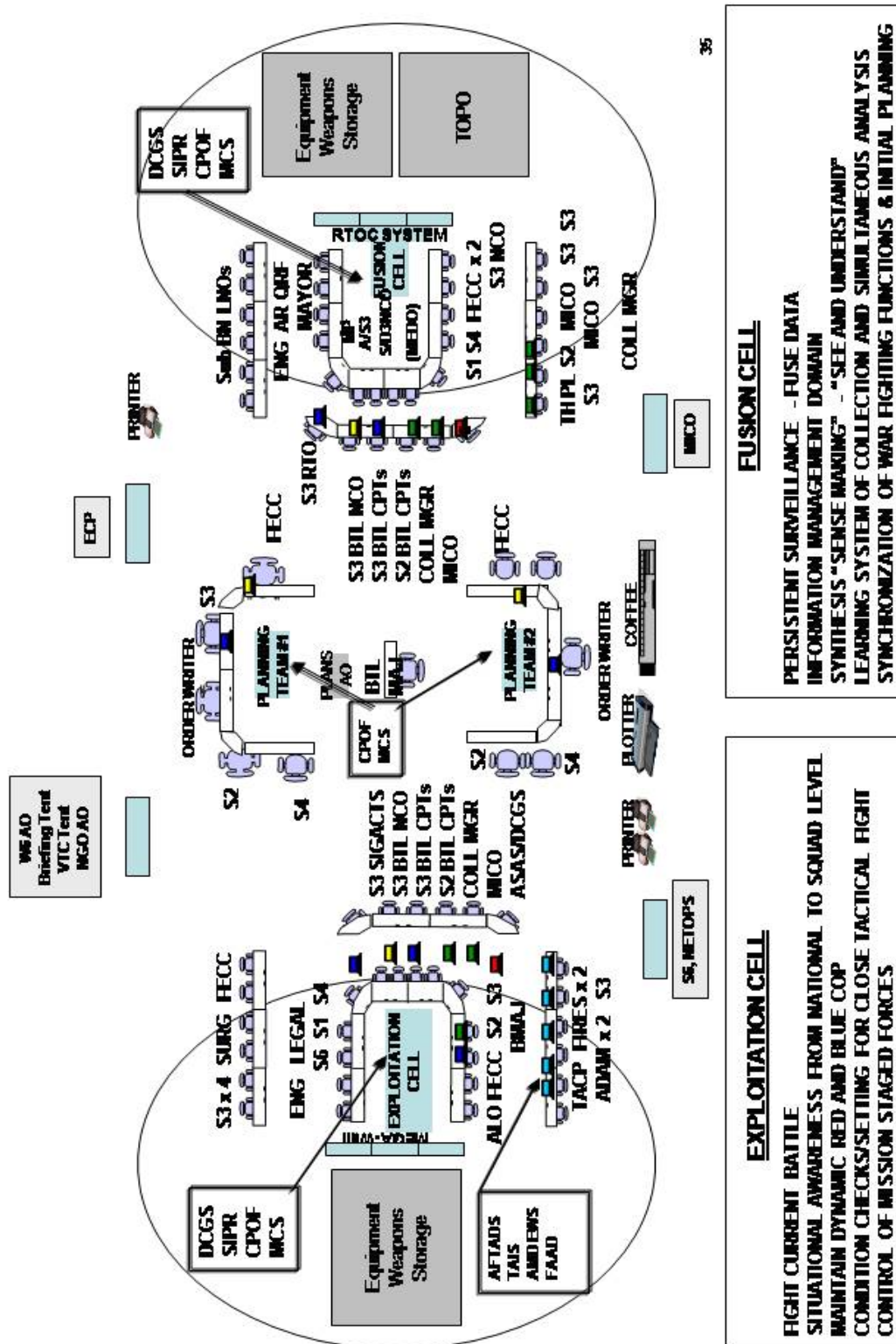
<sup>124</sup> General George W. Casey, “Maintaining Quality in the Force”, (A briefing for the Brookings Institute, Washington, D.C., December 4<sup>th</sup> 2007), 10

<sup>125</sup> Ibid., 21

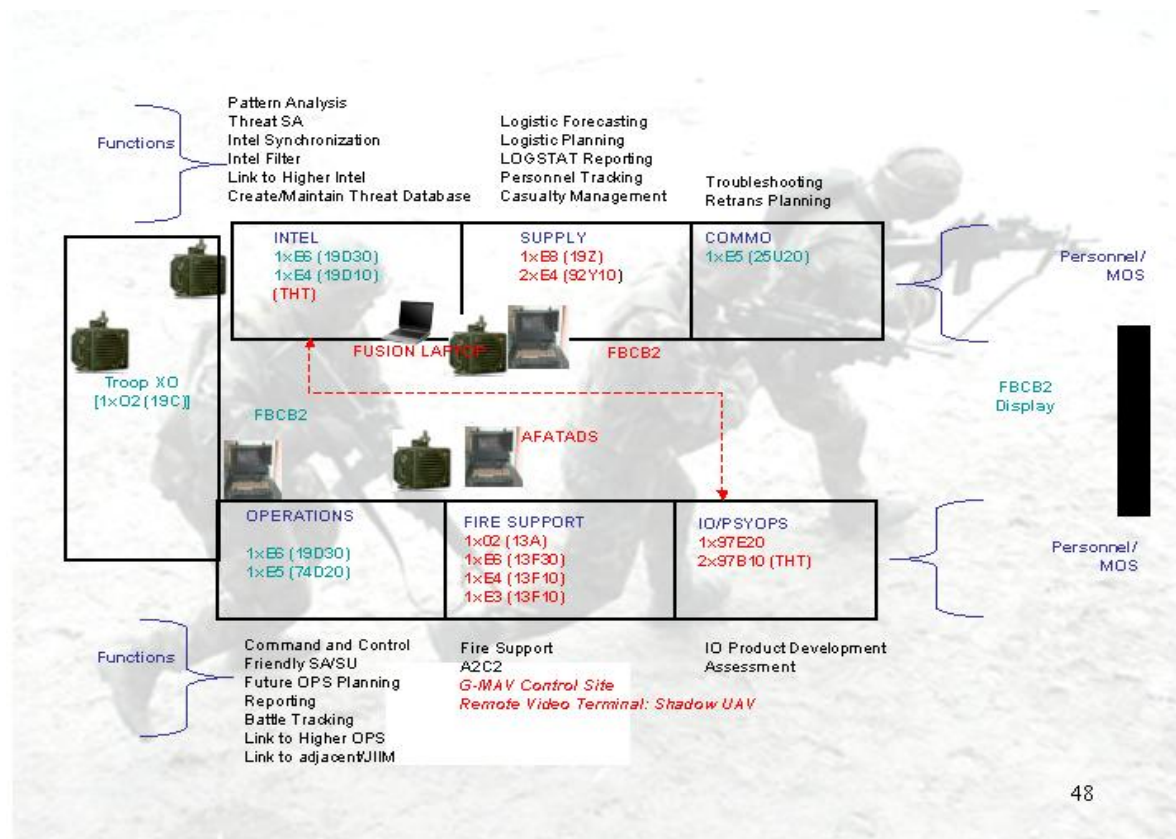
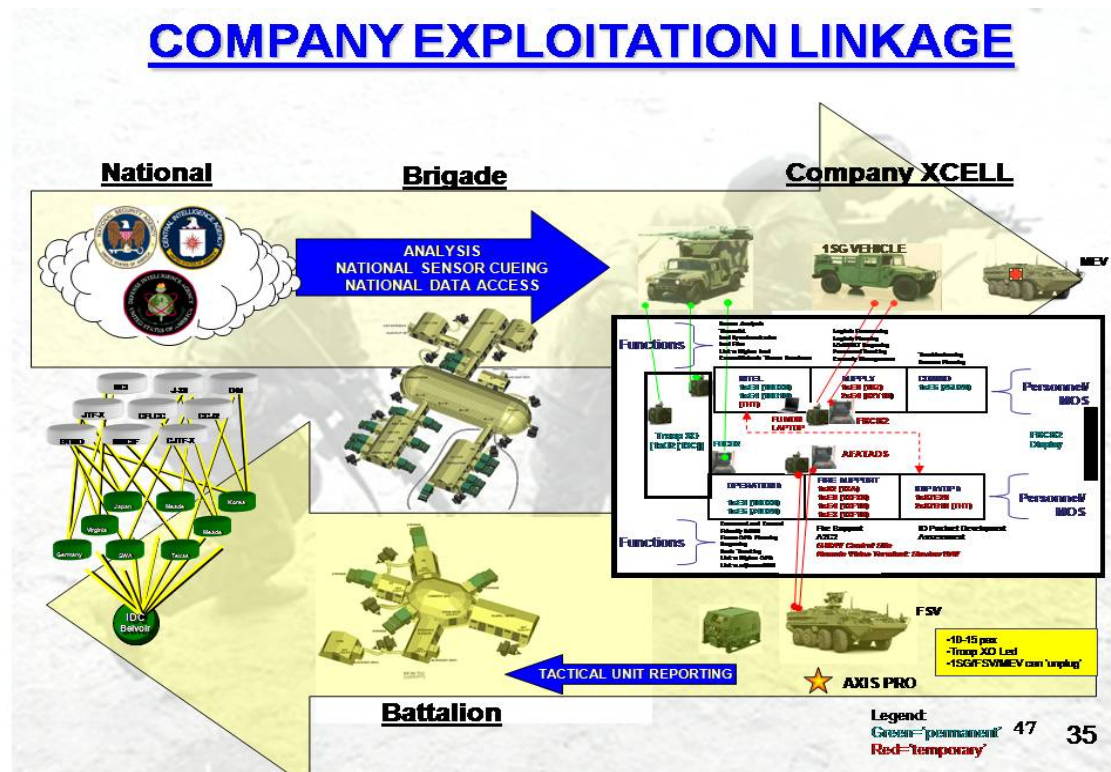
understanding of the environment it is operating in and to take advantage of “transparent maneuver” to solve complex adaptive problems. This will ensure strategic flexibility by iterative problem solving along a productive range of conflict and within “limits of tolerance” before they result in open conflict or devastating attacks that create significant regional and global disequilibrium. This ability is lacking in the current security environment. The U.S. should reverse the current plan to move towards a CONUS based Army and instead focus on a globally based force that provides the persistent presence, fully integrated with Joint, Interagency, and Coalition Partners to shape the environment in an attempt to avoid future large-scale conflicts.

It is absolutely critical that our doctrine is changed to focus on exploitation tactics, enabled by linkages from the national to tactical systems, that are required to support this and future conflicts. Our future strategy must support our company commanders from the objective to our national intelligence infrastructure back to the original objective in order to truly exploit all aspects of warfare in the 21<sup>st</sup> Century. The U.S. Army needs to modify its doctrine and focus on operating in a new persistent conflict environment where cellular warfare will be the dominant form of engagement across overt and transparent domains that formally have not existed or been considered in the security apparatus.

## Appendix 1: Expanded view of Brigade Exploitation and Fusion Cell

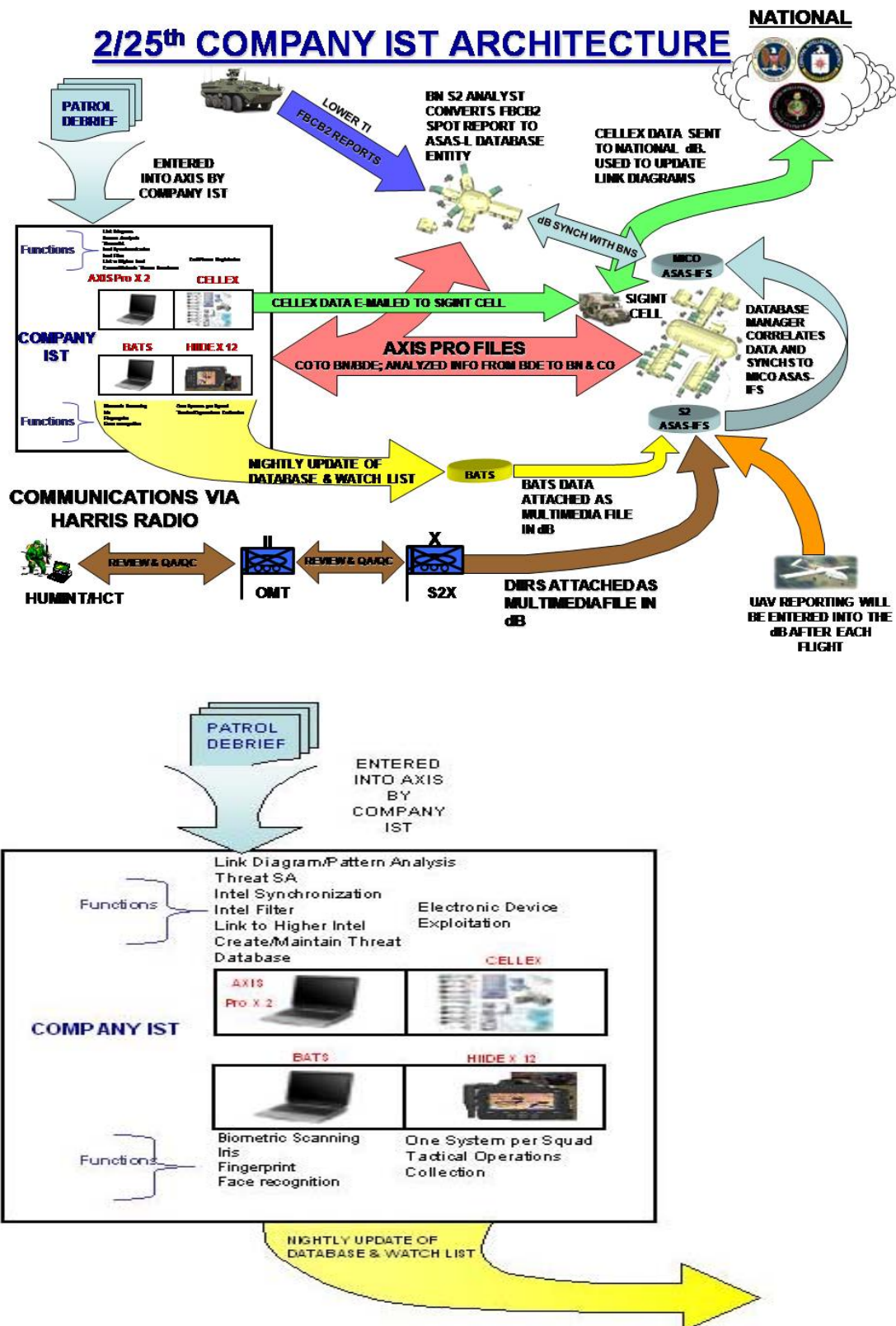


## Appendix 2: Expanded View of Company Exploitation Linkage





## Appendix 3: Expanded View of COIST Architecture



## Glossary

Closed system: An organization that is closed off from or isolated from the environment.

Framing: To form an understanding or appreciation of a given situation or problem.

Limit of Tolerance: The productive range of distress for complex adaptive problems. The upper or lower limits for acceptable behavior.

Persistent Surveillance: The concept that when an ISR asset finds a target of interest, the ISR system is able to maintain enduring contact with the target to support decisive operations.

Maneuvering Intelligence: The movement of intelligence to the appropriate place in order to gain a position of advantage over a rival or to gain a greater understanding of the operational environment.

Micro-Maneuver: The ability to gain a position of advantage without the application of overt actions.

Open System: An organization that interacts with the environment.

Self-organizing system: A system that is able to become more efficient in the use of its resources and better able to exist in its environment. These systems are generally bottom up vice top down systems.

Self-referencing: A key component of self-organizing systems that describes how a system changes in a way that remains constant with itself in a given environment.

Soft Power: An indirect influence on international relations, based on cultural, economic, or ideological means; influence of international relations without coercion

Rival: A person, thing, or entity that is opposed to or in competition with U.S. Forces in any operational environment.

Stakeholder: A person, group, or entity that has an investment, share, or interest in a given outcome.

Tactical Fusion Cells: Fusion Cells that are established at the tactical level (Brigade and below) that focuses on vertical and horizontal integration across the operational environment.

Theater Fusion Centers: The Fusion Cells that have been established in Iraq and Afghanistan to focus on integration between SOF, Conventional, and Coalition forces.

Transparent Maneuver: The indirect approach to warfare that employs diplomatic, information, economic, western education, medicine, energy resources, professional media, and forward based military and interagency forces to shape the global environment

Upper Tactical Internet: Normal access to the information base at division level and higher



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